=> FILE REG
FILE 'REGISTRY' ENTERED AT 15:13:51 ON 18 JAN 2006

Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 17 JAN 2006 HIGHEST RN 872085-61-5
DICTIONARY FILE UPDATES: 17 JAN 2006 HIGHEST RN 872085-61-5

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH JULY 14, 2005

Please note that search-term pricing does apply when conducting SmartSELECT searches.

****
* *
* The CA roles and document type information have been removed from *
* the IDE default display format and the ED field has been added, *
* effective March 20, 2005. A new display format, IDERL, is now *
* available and contains the CA role and document type information. *
* *
****

Structure search iteration limits have been increased. See HELP SLIMITS for details.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

http://www.cas.org/ONLINE/UG/regprops.html

=> FILE HCAPLU
FILE 'HCAPLUS' ENTERED AT 15:13:55 ON 18 JAN 2006

FILE COVERS 1907 - 18 Jan 2006 VOL 144 ISS 4
FILE LAST UPDATED: 17 Jan 2006 (20060117/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

```
=> D QUE
L2            54 SEA FILE=REGISTRY ABB=ON  (10377-51-2/BI OR 10411-26-4/BI OR
                 105-58-8/BI OR 105-64-6/BI OR 105-74-8/BI OR 108-32-7/BI OR
                 108-88-3/BI OR 108-90-7/BI OR 126-33-0/BI OR 126-58-9/BI OR
                 127-63-9/BI OR 131651-65-5/BI OR 1330-20-7/BI OR 14024-11-4/BI
                 OR 14283-07-9/BI OR 14666-78-5/BI OR 149-32-6/BI OR 15520-11-3/
                 BI OR 1561-49-5/BI OR 162684-16-4/BI OR 1712-87-4/BI OR
                 18424-17-4/BI OR 193215-00-8/BI OR 21324-40-3/BI OR 26748-41-4/
                 BI OR 27359-10-0/BI OR 28452-93-9/BI OR 29935-35-1/BI OR
                 3006-82-4/BI OR 32752-09-3/BI OR 33454-82-9/BI OR 35363-40-7/BI
                  OR 39300-70-4/BI OR 4437-85-8/BI OR 462-06-6/BI OR 502-44-3/BI
                  OR 56-81-5/BI OR 56525-42-9/BI OR 616-38-6/BI OR 620-32-6/BI
                 OR 623-53-0/BI OR 623-96-1/BI OR 67-71-0/BI OR 71-43-2/BI OR
                 77-77-0/BI OR 7790-99-0/BI OR 7791-03-9/BI OR 78-67-1/BI OR
                 79-10-7/BI OR 90076-65-6/BI OR 92177-99-6/BI OR 94-36-0/BI OR
                 96-49-1/BI OR 98-95-3/BI)
L3             1 SEA FILE=REGISTRY ABB=ON  L2 AND AZO
L4            11 SEA FILE=REGISTRY ABB=ON  L2 AND PEROX?
L5            42 SEA FILE=REGISTRY ABB=ON  L2 NOT (L3 OR L4)
L6             7 SEA FILE=REGISTRY ABB=ON  L5 AND SULFON
L7             3 SEA FILE=REGISTRY ABB=ON  L6 AND 1/LI
L8             4 SEA FILE=REGISTRY ABB=ON  L6 NOT L7
L9             1 SEA FILE=REGISTRY ABB=ON  "BUTADIENE SULFONE"/CN
L11            2 SEA FILE=REGISTRY ABB=ON  L2 AND THIOPHENE
L12         7330 SEA FILE=HCAPLUS ABB=ON  L8 OR L9 OR L11
L13         1356 SEA FILE=HCAPLUS ABB=ON  (L12 OR ?SULFONE?)(L)ELECTROLYT?
L14        18837 SEA FILE=HCAPLUS ABB=ON  L3 OR L4
L15         4261 SEA FILE=HCAPLUS ABB=ON  (L14 OR ?PEROX? OR AZO?)(L)ELECTROLYT?

L16           41 SEA FILE=HCAPLUS ABB=ON  L13 AND L15
L17           19 SEA FILE=HCAPLUS ABB=ON  L16 AND ELECTROCHEMICAL/SC,SX
L18           14 SEA FILE=REGISTRY ABB=ON  L2 AND (CARBONIC OR CARBONATE)
L19           31 SEA FILE=REGISTRY ABB=ON  L2 NOT (L6 OR L11 OR L18)
L20           10 SEA FILE=REGISTRY ABB=ON  L19 AND 1/LI
L22           21 SEA FILE=REGISTRY ABB=ON  L19 NOT L20
L24           14 SEA FILE=REGISTRY ABB=ON  L22 NOT L4
L25       317131 SEA FILE=REGISTRY ABB=ON  PACR/PCT
L26        49114 SEA FILE=REGISTRY ABB=ON  L25 AND METHACRYL?
L27            8 SEA FILE=REGISTRY ABB=ON  L24 AND 1/NR
L28           15 SEA FILE=HCAPLUS ABB=ON  L16 AND BATTER?
L29           20 SEA FILE=HCAPLUS ABB=ON  L17 OR L28
L30            2 SEA FILE=HCAPLUS ABB=ON  L16 AND L26
L31            7 SEA FILE=HCAPLUS ABB=ON  L16 AND ?METHACRYL?
L32           13 SEA FILE=HCAPLUS ABB=ON  L16 AND (L18 OR ?CARBONATE? )
L33            5 SEA FILE=HCAPLUS ABB=ON  L16 AND L27
L34           23 SEA FILE=HCAPLUS ABB=ON  (L29 OR L30 OR L31 OR L32 OR L33)
L35            1 SEA FILE=HCAPLUS ABB=ON  L16 AND ?CARBONIC?
L36           23 SEA FILE=HCAPLUS ABB=ON  L34 OR L35
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=> D L36 BIB ABS IND HITSTR 1-23

L36  ANSWER 1 OF 23  HCAPLUS  COPYRIGHT 2006 ACS on STN
AN   2005:155693  HCAPLUS
DN   142:219693
TI   Manufacture of 2,2'-bis(4-sulfonatobutoxy)-4,4'-benzidine or its alkali
     metal salts, and their intermediates
```
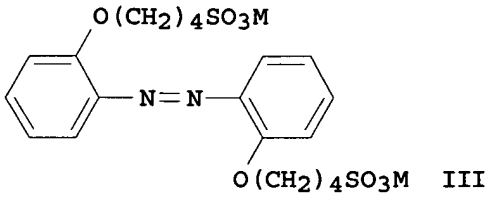

IN Matsuda, Aiko; Mizoguchi, Akira
PA Sumitomo Electric Industries, Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 14 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2005047881	A2	20050224	JP 2003-283992	20030731
PRAI	JP 2003-283992		20030731		

GI



III

AB 2,2'-Bis(4-sulfonatobutoxy)-4,4'-benzidine or its alkali metal salts, useful for sulfo-containing polyimides for fuel cell **electrolytes**, etc., are manufactured by treating 3-nitrophenol (I) with 1,4-butanesultone (II) in the presence of alkali metal hydroxides, mixing the resulting alkali metal 1-nitro-3-(sulfonatobutoxy)benzenes with water, aldehydes, and naphthoquinoid-type reduction catalysts, dropping alkali metal hydroxides to the resulting aqueous solns., further reducing the reaction mixts. under alkali condition without isolating the resulting **azo** compds. III (M = alkali metal) or their corresponding **azoxy** compds., and treating the resulting hydrazo compds. with acids. Thus, 0.360 mol I was treated with 0.90 mol II in the presence of 0.896 mol NaOH at 100° for 11 h, mixed with 37% aqueous HCHO solution and 2,3-dichloro-1,4-naphthoquinone, NaOH dropped, and further reduced in the presence of Zn powder at pH 14.0, and heated with 0.2 mol H2SO4 at 95° for 3 h to give 2,2'-bis(sodium 4-sulfonatobutoxy)-4,4'-benzidine.
IC ICM C07C303-22
ICS C07C303-32; C07C309-11; C07B061-00
CC 35-2 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 25, **52**
ST sulfonatobutoxybenzidine alkali metal salt manuf; polyimide fuel cell **electrolyte** sulfonatobutoxybenzidine manuf; butanesultone nitrophenol substitution sodium hydroxide; naphthoquinone catalyst sodium nitrosulfonatobutoxybenzene redn formaldehyde; redn sodium **azobenzeneoxybutanesulfonate** sodium hydroxide; sulfuric acid benzidine rearrangement sodium sulfonatobutoxyphenylhydrazine; sodium sulfonatobutoxybenzidine manuf
IT Rearrangement
(benzidine; manufacture of bis(sulfonatobutoxy)benzidines from nitrophenol and butanesulfone via di(alkali metal) azobenzeneoxybutanesulfonate and di(alkali metal) sulfonatobutoxyphenylhydrazines)
IT Fuel cell **electrolytes**
(manufacture of bis(sulfonatobutoxy)benzidines for sulfo-containing polyimide fuel cell **electrolytes** from nitrophenol and **butanesulfone**)
IT Reduction
(manufacture of bis(sulfonatobutoxy)benzidines from nitrophenol and

butanesulfone via di(alkali metal) azobenzeneoxybutanesulfonate and di(alkali metal) sulfonatobutoxyphenylhydrazines)

IT Alkali metal hydroxides
RL: RCT (Reactant); RGT (Reagent); RACT (Reactant or reagent)
(manufacture of bis(sulfonatobutoxy)benzidines from nitrophenol and butanesulfone via di(alkali metal) azobenzeneoxybutanesulfonate and di(alkali metal) sulfonatobutoxyphenylhydrazines)

IT Aldehydes, reactions
RL: RGT (Reagent); RACT (Reactant or reagent)
(manufacture of bis(sulfonatobutoxy)benzidines from nitrophenol and butanesulfone via di(alkali metal) azobenzeneoxybutanesulfonate and di(alkali metal) sulfonatobutoxyphenylhydrazines)

IT Reduction catalysts
(naphthoquinoid-type; manufacture of bis(sulfonatobutoxy)benzidines from nitrophenol and butanesulfone via di(alkali metal) azobenzeneoxybutanesulfonate and di(alkali metal) sulfonatobutoxyphenylhydrazines)

IT Substitution reaction
(nitrophenol-butanesultone substitution; manufacture of bis(sulfonatobutoxy)benzidines from nitrophenol and butanesulfone via di(alkali metal) azobenzeneoxybutanesulfonate and di(alkali metal) sulfonatobutoxyphenylhydrazines)

IT Polyimides, preparation
RL: PNU (Preparation, unclassified); PREP (Preparation)
(sulfo-containing; manufacture of bis(sulfonatobutoxy)benzidines for sulfo-containing polyimide fuel cell **electrolytes** from nitrophenol and **butanesulfone**)

IT 823177-65-7P 844431-33-0P
RL: IMF (Industrial manufacture); PREP (Preparation)
(manufacture of bis(sulfonatobutoxy)benzidines from nitrophenol and butanesulfone via di(alkali metal) azobenzeneoxybutanesulfonate and di(alkali metal) sulfonatobutoxyphenylhydrazines)

IT 844431-31-8P 844431-32-9P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(manufacture of bis(sulfonatobutoxy)benzidines from nitrophenol and butanesulfone via di(alkali metal) azobenzeneoxybutanesulfonate and di(alkali metal) sulfonatobutoxyphenylhydrazines)

IT 554-84-7, 3-Nitrophenol 1633-83-6, 1,4-Butanesultone
RL: RCT (Reactant); RACT (Reactant or reagent)
(manufacture of bis(sulfonatobutoxy)benzidines from nitrophenol and butanesulfone via di(alkali metal) azobenzeneoxybutanesulfonate and di(alkali metal) sulfonatobutoxyphenylhydrazines)

IT 1310-73-2, Sodium hydroxide, reactions
RL: RCT (Reactant); RGT (Reagent); RACT (Reactant or reagent)
(manufacture of bis(sulfonatobutoxy)benzidines from nitrophenol and butanesulfone via di(alkali metal) azobenzeneoxybutanesulfonate and di(alkali metal) sulfonatobutoxyphenylhydrazines)

IT 50-00-0, Formaldehyde, reactions
RL: RGT (Reagent); RACT (Reactant or reagent)
(manufacture of bis(sulfonatobutoxy)benzidines from nitrophenol and butanesulfone via di(alkali metal) azobenzeneoxybutanesulfonate and di(alkali metal) sulfonatobutoxyphenylhydrazines)

IT 7664-93-9, Sulfuric acid, reactions
RL: RGT (Reagent); RACT (Reactant or reagent)
(rearrangement of hydrazo compds. into benzidines by; manufacture of bis(sulfonatobutoxy)benzidines from nitrophenol and butanesulfone via di(alkali metal) azobenzeneoxybutanesulfonate and di(alkali metal) sulfonatobutoxyphenylhydrazines)

IT 117-80-6, 2,3-Dichloro-1,4-naphthoquinone 7440-66-6, Zinc, uses

RL: CAT (Catalyst use); USES (Uses)
(reduction catalyst; manufacture of bis(sulfonatobutoxy)benzidines from nitrophenol and butanesulfone via di(alkali metal) azobenzeneoxybutanesulfonate and di(alkali metal) sulfonatobutoxyphenylhydrazines)

IT 7732-18-5, Water, uses
RL: NUU (Other use, unclassified); USES (Uses)
(solvent; manufacture of bis(sulfonatobutoxy)benzidines from nitrophenol and butanesulfone via di(alkali metal) azobenzeneoxybutanesulfonate and di(alkali metal) sulfonatobutoxyphenylhydrazines)

L36 ANSWER 2 OF 23 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2005:155490 HCAPLUS
DN 142:264348
TI Electrolyte for rechargeable lithium **battery**
IN Lee, Yong-Beom; Song, Eui-Hwan; Kim, Kwang-Sup; Earmme, Tae-Shik; Kim, You-Mee
PA Samsung SDI Co., Ltd., S. Korea
SO Eur. Pat. Appl., 32 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1508934	A1	20050223	EP 2004-90320	20040819
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				
	JP 2005072003	A2	20050317	JP 2004-241017	20040820
	US 2005084765	A1	20050421	US 2004-924248	20040820
PRAI	KR 2003-57716	A	20030820		
	KR 2004-5874	A	20040129		

OS MARPAT 142:264348
AB Disclosed is an electrolyte for a rechargeable lithium **battery**, including a mixture of organic solvents including a cyclic solvent and a nitrile-based solvent represented by the formula R-C.tplbond.N (R is from C1-10 aliphatic hydrocarbons, C1-10 halogenated aliphatic hydrocarbons, C6-10 aromatic hydrocarbons, and C6-10 halogenated aromatic hydrocarbons) and a lithium salt.
IC ICM H01M010-40
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST electrolyte rechargeable lithium **battery**
IT Nitriles, uses
RL: DEV (Device component use); USES (Uses)
(aliphatic, C1-10; electrolyte for rechargeable lithium **battery**)
IT Nitriles, uses
RL: DEV (Device component use); USES (Uses)
(aromatic, C6-10; electrolyte for rechargeable lithium **battery**)
IT **Battery** electrolytes
(electrolyte for rechargeable lithium **battery**)
IT Lactones
RL: DEV (Device component use); USES (Uses)
(electrolyte for rechargeable lithium **battery**)
IT Secondary **batteries**
(lithium; electrolyte for rechargeable lithium **battery**)
IT **Peroxides**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(organic; **electrolyte** for rechargeable lithium **battery**

)

IT **94-36-0**, Dibenzoyl **peroxide**, processes **105-74-8**, Dilauroyl **peroxide** 107-71-1, tert-**Butylperoxy** acetate 109-13-7, tert-**Butylperoxyisobutyrate** 110-22-5, Diacetyl **peroxide** 614-45-9, tert-**Butylperoxy** benzoate 686-31-7, tert-**Amylperoxy** 2-ethylhexanoate 927-07-1, tert-Butyl **peroxypivalate** 2372-21-6, tert-Butyl **peroxy** isopropyl **carbonate 3006-82-4**, tert-Butyl **peroxy**-2-ethyl hexanoate 3851-87-4, Bis(3,5,5-trimethyl)hexanoyl **peroxide** 4419-11-8, 2,2'-**Azobis**(2,4-dimethylvaleronitrile) 13122-18-4, tert-**Butylperoxy** 3,5,5-trimethylhexanoate 15518-51-1, Diethylene glycol bis(tert-**butylperoxycarbonate**) **15520-11-3**, Di(4-tert-butylcyclohexyl)**peroxydicarbonate** 25551-14-8 26748-38-9, tert-Butyl **peroxy** neoheptanoate **26748-41-4**, tert-Butyl **peroxy** neodecanoate 29240-17-3, tert-Amyl **peroxypivalate** 34443-12-4, tert-Butyl **peroxy** 2-ethylhexyl **carbonate** 36536-42-2, 1,6-Hexanediol bis(tert-butyl **peroxycarbonate**) 51240-95-0, 1,1,3,3-Tetramethylbutyl **peroxy** neodecanoate 51938-28-4, tert-**Hexylperoxypivalate** 52238-68-3, Bis(3-methoxybutyl) **peroxydicarbonate** 68860-54-8 96989-15-0 845717-44-4
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(**electrolyte** for rechargeable lithium **battery**)

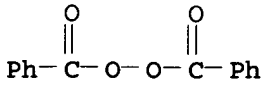
IT 79-20-9, Methyl acetate 96-48-0, γ-Butyrolactone **96-49-1**, Ethylene **carbonate 105-58-8**, Diethyl **carbonate** 106-70-7, Methyl hexanoate 107-12-0, Propionitrile 107-31-3, Methyl formate 108-29-2, γ-Valerolactone **108-32-7**, Propylene **carbonate** 109-74-0, Butyronitrile 110-59-8, Valeronitrile 124-12-9, Caprylonitrile 140-29-4, Phenylacetonitrile 141-78-6, Ethyl acetate, uses 326-62-5, 2-FluoroPhenylacetonitrile 394-47-8, 2-Fluorobenzonitrile 459-22-3, 4-FluoroPhenylacetonitrile **502-44-3**, ε-Caprolactone 542-28-9, δ-Valerolactone 542-52-9, Dibutyl **carbonate** **616-38-6**, Dimethyl **carbonate 623-53-0**, Ethyl methyl **carbonate 623-96-1**, Dipropyl **carbonate** 629-08-3, Heptanenitrile 630-18-2, tert-Butyl cyanide 695-06-7, γ-Caprolactone 766-05-2, Cyclohexanecarbonitrile 1194-02-1, 4-Fluorobenzonitrile 4254-02-8, Cyclopentanecarbonitrile **4437-85-8**, Butylene **carbonate** 7439-93-2D, Lithium, salt 7791-03-9, Lithium perchlorate 12190-79-3, Cobalt lithium oxide (CoLiO2) 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 57381-51-8, 4-Chloro-2-fluoro-benzonitrile 60702-69-4, 2-Chloro-4-fluoro-benzonitrile 90076-65-6 90240-74-7 127813-79-0 132843-44-8 179802-95-0, Cobalt lithium manganese nickel oxide (Co0.1LiMn0.1Ni0.8O2) 845717-45-5
RL: DEV (Device component use); USES (Uses)
(electrolyte for rechargeable lithium **battery**)

IT 75-05-8, Acetonitrile, uses **77-77-0**, DiVinyl **sulfone** **105-64-6**, Di-**isopropylperoxydicarbonate** 628-73-9, Capronitrile 872-36-6, Vinylene **carbonate** 3741-38-6, Ethylene sulfite 16111-62-9, Bis(2-ethylhexyl) **peroxydicarbonate** 22537-94-6 71331-99-2, Bis(4-tert-butylcyclohexyl) **peroxycarbonate** 114435-02-8, Fluoroethylene **carbonate**
RL: MOA (Modifier or additive use); USES (Uses)
(**electrolyte** for rechargeable lithium **battery**)

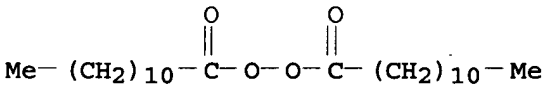
IT **94-36-0**, Dibenzoyl **peroxide**, processes **105-74-8**

, Dilauroyl **peroxide 3006-82-4**, tert-Butyl **peroxy**-2-ethyl hexanoate **15520-11-3**, Di(4-tert-butylcyclohexyl)**peroxydicarbonate 26748-41-4**, tert-Butyl **peroxy** neodecanoate
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(**electrolyte** for rechargeable lithium **battery**)

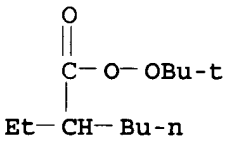
RN 94-36-0 HCAPLUS
CN Peroxide, dibenzoyl (9CI) (CA INDEX NAME)



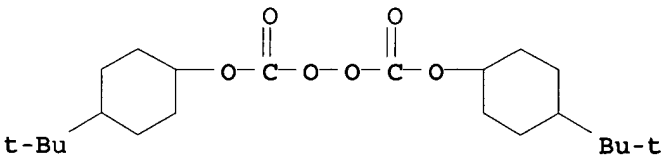
RN 105-74-8 HCAPLUS
CN Peroxide, bis(1-oxododecyl) (9CI) (CA INDEX NAME)



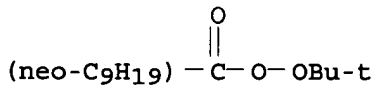
RN 3006-82-4 HCAPLUS
CN Hexaneperoxoic acid, 2-ethyl-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)



RN 15520-11-3 HCAPLUS
CN Peroxydicarbonic acid, bis[4-(1,1-dimethylethyl)cyclohexyl] ester (9CI) (CA INDEX NAME)



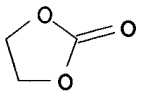
RN 26748-41-4 HCAPLUS
CN Neodecaneperoxoic acid, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)



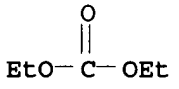
IT **96-49-1**, Ethylene **carbonate 105-58-8**, Diethyl

carbonate 108-32-7, Propylene **carbonate**
502-44-3, ε-Caprolactone **616-38-6**, Dimethyl
carbonate 623-53-0, Ethyl methyl **carbonate**
623-96-1, Dipropyl **carbonate 4437-85-8**,
Butylene **carbonate**
RL: DEV (Device component use); USES (Uses)
(electrolyte for rechargeable lithium **battery**)

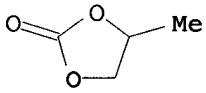
RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (9CI) (CA INDEX NAME)



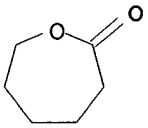
RN 105-58-8 HCAPLUS
CN Carbonic acid, diethyl ester (6CI, 8CI, 9CI) (CA INDEX NAME)



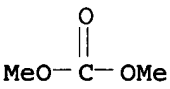
RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (9CI) (CA INDEX NAME)



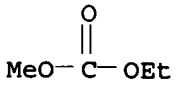
RN 502-44-3 HCAPLUS
CN 2-Oxepanone (8CI, 9CI) (CA INDEX NAME)



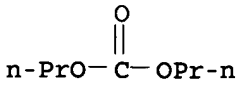
RN 616-38-6 HCAPLUS
CN Carbonic acid, dimethyl ester (6CI, 8CI, 9CI) (CA INDEX NAME)



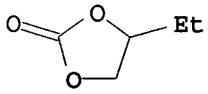
RN 623-53-0 HCAPLUS
CN Carbonic acid, ethyl methyl ester (7CI, 8CI, 9CI) (CA INDEX NAME)



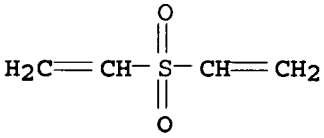
RN 623-96-1 HCAPLUS
CN Carbonic acid, dipropyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



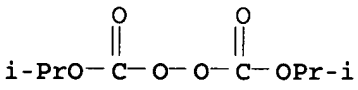
RN 4437-85-8 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-ethyl- (9CI) (CA INDEX NAME)



IT **77-77-0**, DiVinyl **sulfone 105-64-6**, Di-**isopropylperoxydicarbonate**
RL: MOA (Modifier or additive use); USES (Uses)
(**electrolyte** for rechargeable lithium **battery**)
RN 77-77-0 HCAPLUS
CN Ethene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



RN 105-64-6 HCAPLUS
CN Peroxydicarbonic acid, bis(1-methylethyl) ester (9CI) (CA INDEX NAME)



RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 3 OF 23 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2005:57618 HCAPLUS
DN 142:159488
TI Polymer electrolyte and polymer electrolyte membrane which uses the electrolyte, membrane-electrode laminate, and polymer electrolyte fuel cell
IN Nakamura, Masataka; Shimoyama, Naoki; Izuhara, Daisuke; Kono, Satoshi; Kitai, Masayuki
PA Toray Industries, Inc., Japan

SO Jpn. Kokai Tokkyo Koho, 57 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2005019055	A2	20050120	JP 2003-179178	20030624
PRAI	JP 2003-179178		20030624		

AB The electrolyte is obtained by mixing a 1st H+-conductive polymer with a 2nd polymer has a nonfreezing water content rate 40-100 weight%, obtained from the following formula: (nonfreezing water content rate) = (nonfreezing water volume) / (low m.p. water volume + nonfreezing water volume) + 100(%). The electrolyte comprises the above electrolyte. The laminate comprises the above electrolyte or the electrolyte membrane. The fuel cell has the above electrolyte or the electrolyte membrane.
IC ICM H01M008-02
ICS C08L101-02; H01B001-06; H01M008-06; H01M008-10
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST fuel cell polymer electrolyte membrane mixed polymer
IT Polythiophenylenes
RL: DEV (Device component use); USES (Uses)
(carboxylated; electrolytes containing mixed polymers for membrane-electrode laminates in fuel cells)
IT Fuel cell electrolytes
Fuel cells
Polymer electrolytes
(electrolytes containing mixed polymers for membrane-electrode laminates in fuel cells)
IT Fluoropolymers, uses
RL: DEV (Device component use); USES (Uses)
(electrolytes containing mixed polymers for membrane-electrode laminates in fuel cells)
IT Epoxy resins, uses
RL: MOA (Modifier or additive use); USES (Uses)
(electrolytes containing mixed polymers for membrane-electrode laminates in fuel cells)
IT Polyoxyalkylenes, uses
RL: MOA (Modifier or additive use); USES (Uses)
(electrolytes containing mixed polymers for membrane-electrode laminates in fuel cells)
IT Carbon fibers, uses
RL: DEV (Device component use); USES (Uses)
(fabrics; electrolytes containing mixed polymers for membrane-electrode laminates in fuel cells)
IT Polyoxyalkylenes, uses
RL: DEV (Device component use); USES (Uses)
(fluorine- and sulfo-containing, ionomers; electrolytes containing mixed polymers for membrane-electrode laminates in fuel cells)
IT Polyimides, uses
RL: DEV (Device component use); USES (Uses)
(phosphate group containing; electrolytes containing mixed polymers for membrane-electrode laminates in fuel cells)
IT Polythiophenylenes
RL: DEV (Device component use); USES (Uses)
(phosphonated; electrolytes containing mixed polymers for membrane-electrode laminates in fuel cells)
IT Polyketones
RL: MOA (Modifier or additive use); USES (Uses)

(polyether-, sulfonated; electrolytes containing mixed polymers for membrane-electrode laminates in fuel cells)

IT Polyethers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(polyketone-, sulfonated; electrolytes containing mixed polymers for membrane-electrode laminates in fuel cells)

IT Fluoropolymers, uses
RL: DEV (Device component use); USES (Uses)
(polyoxyalkylene-, sulfo-containing, ionomers; electrolytes containing mixed polymers for membrane-electrode laminates in fuel cells)

IT Ionomers
RL: DEV (Device component use); USES (Uses)
(polyoxyalkylenes, fluorine- and sulfo-containing; electrolytes containing mixed polymers for membrane-electrode laminates in fuel cells)

IT **Polysulfones**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(sulfonated; **electrolytes** containing mixed polymers for membrane-electrode laminates in fuel cells)

IT 7440-06-4, Platinum, uses 12779-05-4
RL: CAT (Catalyst use); USES (Uses)
(electrolytes containing mixed polymers for membrane-electrode laminates in fuel cells)

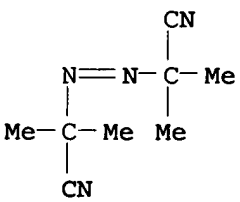
IT 1321-74-0, Divinyl benzene, uses 4766-57-8, Tetrabutoxy silane 5593-70-4, Titanium tetrabutoxy 7440-44-0, Carbon, uses 9002-84-0, Polytetrafluoroethylene 28212-48-8D, Polydiphenoxy phosphazene, sulfonated 66796-30-3, Nafion 117 536513-90-3
RL: DEV (Device component use); USES (Uses)
(electrolytes containing mixed polymers for membrane-electrode laminates in fuel cells)

IT 56-81-5, Glycerin, uses **78-67-1**, **Azobisisobutyronitrile** 681-84-5, Tetramethoxy silane 822-06-0, 1,6-Hexane diisocyanate 998-30-1, Triethoxy silane 2996-92-1, Phenyl trimethoxy silane 9016-74-4D, Poly(hydroxyphenylene), sulfonated 17882-08-5 18407-59-5 25322-69-4, Polypropylene glycol 28469-78-5, Tetramethoxy zirconium 116875-10-6 444910-71-8, BPEFG 827608-20-8
RL: MOA (Modifier or additive use); USES (Uses)
(**electrolytes** containing mixed polymers for membrane-electrode laminates in fuel cells)

IT 27028-97-3D, Polyphenylene sulfide **sulfone**, sulfonated
RL: DEV (Device component use); USES (Uses)
(sulfonated; **electrolytes** containing mixed polymers for membrane-electrode laminates in fuel cells)

IT **78-67-1**, **Azobisisobutyronitrile**
RL: MOA (Modifier or additive use); USES (Uses)
(**electrolytes** containing mixed polymers for membrane-electrode laminates in fuel cells)

RN 78-67-1 HCAPLUS
CN Propanenitrile, 2,2'-azobis[2-methyl- (9CI) (CA INDEX NAME)



L36 ANSWER 4 OF 23 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2005:16052 HCAPLUS
DN 142:97541
TI Polymer electrolyte membrane electrode for polymer electrolyte fuel cell
IN Nakamura, Masataka; Shimoyama, Naoki; Izuhara, Daisuke; Kono, Shunji; Kidai, Masayuki
PA Toray Industries, Inc., Japan
SO PCT Int. Appl., 101 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2005001969	A1	20050106	WO 2003-JP8032	20030625
WO 2005001969	C1	20050224		

W: CA, CN, KR, US
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR

PRAI WO 2003-JP8032 20030625

AB The material is characterized by having high proton conductivity, low fuel crossover, high output, and high energy d. The electrolyte is a mix. comprising a proton conductive polymer and another polymer different from the previous one. The ratio of antifreeze water quantity in polymer electrolyte is between 40-100 (wt)%.

IC ICM H01M008-02
ICS H01M008-10; H01M001-06
CC 52-3 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 35, 72
ST polymer electrolyte membrane electrode fuel cell
IT Polyketones
RL: TEM (Technical or engineered material use); USES (Uses)
(polyether-; polymer electrolyte membrane electrode for polymer electrolyte fuel cell)
IT Polyethers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyketone-; polymer electrolyte membrane electrode for polymer electrolyte fuel cell)
IT Electrodes
(polymer electrolyte membrane electrode for polymer electrolyte fuel cell)
IT Fluoropolymers, uses
Polyimides, uses
Polyoxyalkylenes, uses
Polysulfones, uses
Polythiophenylenes
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer **electrolyte** membrane electrode for polymer **electrolyte** fuel cell)
IT Membranes, nonbiological
(polymer electrolyte; polymer electrolyte membrane electrode for polymer electrolyte fuel cell)
IT Ionomers
RL: TEM (Technical or engineered material use); USES (Uses)
(polyoxyalkylenes, fluorine- and sulfo-containing, for electrode preparation; polymer electrolyte membrane electrode for polymer electrolyte fuel cell)
IT 25085-99-8 66072-39-7
RL: TEM (Technical or engineered material use); USES (Uses)

(epoxy resin; polymer electrolyte membrane electrode for polymer electrolyte fuel cell)

IT 7440-06-4, Platinum, uses 7440-18-8, Ruthenium, uses 7440-44-0, Carbon, uses 9002-84-0, Ptfe
RL: TEM (Technical or engineered material use); USES (Uses)
(for electrode preparation; polymer electrolyte membrane electrode for polymer electrolyte fuel cell)

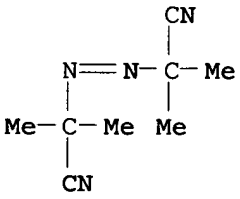
IT **78-67-1**, Aibn 822-06-0, 1,6-Hexanediisocyanate 998-30-1, Triethoxysilane 1321-74-0, Divinylbenzene, uses 2487-90-3D, Trimethoxysilane, phenoxy 2996-92-1, Phenyltrimethoxysilane 5314-52-3D, Dimethoxysilane, phenoxy 5593-70-4, Tetrabutoxy titanium 6843-66-9, Diphenyldimethoxysilane 7440-32-6D, Titanium, alkoxides 25322-69-4, Polypropyleneglycol 27028-97-3, Polyphenylenesulfide **sulfone** 28212-48-8, Polydiphenoxyphosphazene 28212-48-8D, Polydiphenoxyphosphazene, sulfonide 28469-78-5, Tetramethoxy zirconium 50851-57-5D, Polystyrene sulfonic acid, sodium salt 66796-30-3, Nafion 117 444910-71-8, Bpefg 536513-90-3
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer **electrolyte** membrane electrode for polymer **electrolyte** fuel cell)

IT 116875-10-6
RL: TEM (Technical or engineered material use); USES (Uses)
(proton conductive polymer; polymer electrolyte membrane electrode for polymer electrolyte fuel cell)

IT 31694-16-3D, sulfonide
RL: TEM (Technical or engineered material use); USES (Uses)
(sulfonide; polymer electrolyte membrane electrode for polymer electrolyte fuel cell)

IT **78-67-1**, Aibn
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer **electrolyte** membrane electrode for polymer **electrolyte** fuel cell)

RN 78-67-1 HCAPLUS
CN Propanenitrile, 2,2'-azobis[2-methyl- (9CI) (CA INDEX NAME)



RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 5 OF 23 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:1042417 HCAPLUS
DN 142:300815
TI New lithium salts for rechargeable **battery** electrolytes
AU Mandal, Braja; Sooksimuang, Thanasat; Griffin, Brian; Padhi, Akshaya; Filler, Robert
CS Department of Biological, Chemical and Physical Sciences, Illinois Institute of Technology, Chicago, IL, 60616, USA
SO Solid State Ionics (2004), 175(1-4), 267-272
CODEN: SSIOD3; ISSN: 0167-2738
PB Elsevier B.V.
DT Journal

LA English
AB The facile syntheses of new, low-cost, non-fluorinated, sulfonyl-substituted imide and methide lithium salts are described. These salts, prepared for potential application in lithium ion rechargeable **battery** electrolytes, exhibit very good electrochem. and thermal behavior. While the salts are very soluble in DMSO and sulfolane, their solubilities in standard **carbonate** solvents is less than adequate for **battery** operations. Mol. modifications to improve solubility are in progress.
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 76
ST synthesis lithium salt imide methide secondary **battery** electrolyte cond
IT Stability
(hydrolytic, thermal, electrochem., of lithium imide salts; new lithium salts for rechargeable **battery** electrolytes)
IT Secondary **batteries**
(lithium; new lithium salts for rechargeable **battery** electrolytes)
IT Alkylation
Battery electrolytes
Lithiation
(new lithium salts for rechargeable **battery** electrolytes)
IT **Sulfones**
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(new lithium salts for rechargeable **battery electrolytes**)
IT Solubility
(of lithium imide salts in **carbonate** solvents, DMSO, and sulfolane; new lithium salts for rechargeable **battery** electrolytes)
IT Electric impedance
(of lithium salt solns. in DMSO; new lithium salts for rechargeable **battery** electrolytes)
IT Electric conductivity
(of salts in solvents; new lithium salts for rechargeable **battery** electrolytes)
IT Imides
Sulfonic acids, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(sulfonimides; new lithium salts for rechargeable **battery** electrolytes)
IT Decomposition
(temperature of; new lithium salts for rechargeable **battery** electrolytes)
IT 67-68-5, DMSO, uses **96-49-1**, Ethylene **carbonate** **126-33-0**, Sulfolane **616-38-6**, Dimethyl **carbonate**
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(new lithium salts for rechargeable **battery electrolytes**)
IT 21324-40-3, Lithium hexafluorophosphate
RL: PRP (Properties)
(new lithium salts for rechargeable **battery** electrolytes)
IT 1070-92-4P 1750-62-5P 4610-99-5P 90325-14-7P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(new lithium salts for rechargeable **battery** electrolytes)
IT 59099-56-8P 133395-17-2P 259106-93-9P 847684-90-6P 847684-93-9P

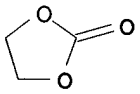
847684-94-0P 847684-96-2P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(new lithium salts for rechargeable **battery** electrolytes)

IT 75-08-1, Ethanethiol 110-88-3, 1,3,5-Trioxane, reactions 124-63-0, Methanesulfonyl chloride 420-04-2, Cyanamide 594-44-5, Ethanesulfonyl chloride 598-30-1, sec-Butyl Lithium 917-54-4, Methyl lithium 1310-65-2, Lithium hydroxide 1618-26-4, Bis(methylthio)methane 7646-69-7, Sodium hydride (NaH) 7722-84-1, Hydrogen **peroxide**, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(new lithium salts for rechargeable **battery electrolytes**)

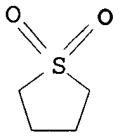
IT 15873-42-4P, Imidodisulfuryl chloride 34782-37-1P 34782-38-2P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(new lithium salts for rechargeable **battery** electrolytes)

IT **96-49-1**, Ethylene **carbonate 126-33-0**, Sulfolane **616-38-6**, Dimethyl **carbonate**
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(new lithium salts for rechargeable **battery electrolytes**)

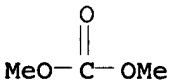
RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (9CI) (CA INDEX NAME)



RN 126-33-0 HCAPLUS
CN Thiophene, tetrahydro-, 1,1-dioxide (8CI, 9CI) (CA INDEX NAME)



RN 616-38-6 HCAPLUS
CN Carbonic acid, dimethyl ester (6CI, 8CI, 9CI) (CA INDEX NAME)



RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 6 OF 23 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:1036367 HCAPLUS
DN 142:31648
TI Capacitors including interacting separators and surfactants
IN Norton, John D.; Rorvick, Anthony W.; Nielsen, Christian S.
PA USA
SO U.S. Pat. Appl. Publ., 15 pp.

CODEN: USXXCO
DT Patent
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2004240156	A1	20041202	US 2003-622957	20030718
	US 2004246657	A1	20041209	US 2003-618047	20030711
	US 6985352	B2	20060110		
	US 2005117277	A1	20050602	US 2003-618048	20030711
PRAI	US 2003-474800P	P	20030530		

AB The present invention relates generally to capacitor cells and the use of separator materials that interact with one or more surfactants in such cells. More specifically, the present invention is related to capacitor cells that include separators that are impregnated with a surfactant or that absorb and/or interact with a surfactant that is included in an electrolyte placed within the capacitor cell.

IC ICM H01G009-02
INCL 361512000
CC 76-10 (Electric Phenomena)
Section cross-reference(s): 66
ST electrolytic capacitor separator surfactant absorption impregnation
IT **Carbonates**, processes
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(aryl, crosslinking agents; electrolytic capacitors including interacting separators and surfactants)
IT Polymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(co-; electrolytic capacitors including interacting separators and surfactants)
IT Polyanhydrides
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(crosslinking agent; electrolytic capacitors including interacting separators and surfactants)
IT Acid halides
Acids, processes
Alcohols, processes
Aldehydes, processes
Alkyl halides
Amines, processes
Anhydrides
Azides
Epoxides
Esters, processes
Isocyanates
Nitro compounds
Peroxides, processes
Sulfones
Thiols, processes
Vinyl compounds, processes
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(crosslinking agents; **electrolytic** capacitors including interacting separators and surfactants)
IT Absorbed substances
Crosslinking agents
Electrolytes
Electrolytic capacitors

Impregnation
Surfactants
(electrolytic capacitors including interacting separators and surfactants)

IT Fluoropolymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(electrolytic capacitors including interacting separators and surfactants)

IT Acetals
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(haloacetals, crosslinking agents; electrolytic capacitors including interacting separators and surfactants)

IT Paper
(kraft, separator; electrolytic capacitors including interacting separators and surfactants)

IT Imides
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(maleimides, crosslinking agents; electrolytic capacitors including interacting separators and surfactants)

IT Paper
(manila, separator; electrolytic capacitors including interacting separators and surfactants)

IT Peptides, uses
Polysaccharides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polypeptides, surfactants; electrolytic capacitors including interacting separators and surfactants)

IT Paper
(separator; electrolytic capacitors including interacting separators and surfactants)

IT **Polycarbonates**, uses
Polyesters, uses
Polymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(separator; electrolytic capacitors including interacting separators and surfactants)

IT Polyamides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(surfactant; electrolytic capacitors including interacting separators and surfactants)

IT **77-77-0**, Vinyl **sulfone** 543-20-4, Succinyl chloride 70539-42-3 85419-94-9 92933-84-1
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(crosslinking agent; **electrolytic** capacitors including interacting separators and surfactants)

IT 9002-98-6 9003-39-8, Polyvinylpyrrolidone 9004-61-9, Hyaluronic acid 9004-61-9D, Hyaluronic acid, derivs. 25104-18-1, Polylysine 78644-42-5
RL: TEM (Technical or engineered material use); USES (Uses)
(polypeptides, surfactants; electrolytic capacitors including interacting separators and surfactants)

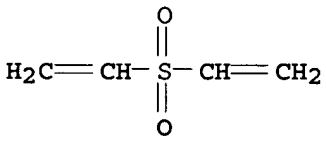
IT 9002-84-0, Polytetrafluoroethylene 9002-88-4, Polyethylene 9003-07-0, Polypropylene 139044-91-0, Cyclopore 259173-47-2, Isopore 471879-18-2, Memtrex 781643-21-8, Poretics
RL: TEM (Technical or engineered material use); USES (Uses)
(separator; electrolytic capacitors including interacting separators and surfactants)

IT 9002-89-5, Polyvinyl alcohol 9003-01-4, Polyacrylic acid 9003-05-8,

Polyacrylamide 9004-54-0, Dextran, uses 9005-32-7, Alginic acid 9012-36-6, Agarose 25067-34-9, Vinyl alcohol-ethene copolymer 25213-24-5, Vinyl acetate-vinyl alcohol copolymer 25722-70-7, Polyglycidol
RL: TEM (Technical or engineered material use); USES (Uses)
(surfactant; electrolytic capacitors including interacting separators and surfactants)

IT **77-77-0**, Vinyl **sulfone**
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(crosslinking agent; **electrolytic** capacitors including interacting separators and surfactants)

RN 77-77-0 HCAPLUS
CN Ethene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



L36 ANSWER 7 OF 23 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:1020075 HCAPLUS
DN 141:410626
TI High purity electrolytic sulfonic acid solutions
IN Martyak, Nicholas Michael; Noswitz, Martin; Smith, Gary S.; Janney, Patrick Kendall; Ollivier, Jean-Marie
PA Atofina Chemicals, Inc., USA
SO PCT Int. Appl., 32 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2004101860	A1	20041125	WO 2004-US12887	20040427

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

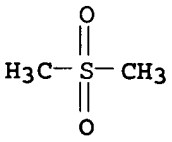
PRAI US 2003-469764P P 20030512

AB Disclosed is a solution for an electrochem. process, the solution containing a sulfonic acid and having a low concentration of sulfur compds., either low or high valence, that are susceptible to reduction and which is intended for use in electrodeposition, **batteries**, conductive polymers and descaling processes.

IC ICM C25D005-00
ICS C25D021-18; C23C016-00; C25B003-00; C02F001-72; C25B001-02; H01F003-06; H01M006-00
CC 23-11 (Aliphatic Compounds)

Section cross-reference(s): **52**, 72
ST high purity electrolytic sulfonic acid soln
IT Sulfonic acids, preparation
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); PREP (Preparation); PROC (Process)
(derivs.; high purity electrolytic solns. of)
IT Purification
(of impure sulfonic acids in preparation of high purity electrolytic sulfonic acid solns.)
IT Reducing agents
(purification of impure sulfonic acids from high valent sulfur compds. in preparation of high purity electrolytic sulfonic acid solns. using)
IT Oxidation, electrochemical
Oxidizing agents
(purification of impure sulfonic acids from low valent sulfur compds. in preparation of high purity electrolytic sulfonic acid solns. using)
IT Electrodeposition
(purification of impure sulfonic acids in preparation of high purity electrolytic sulfonic acid solns. for use in)
IT Sulfonic acids, preparation
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PUR (Purification or recovery); PYP (Physical process); PREP (Preparation); PROC (Process)
(salts; high purity electrolytic solns. of)
IT 7440-44-0, Activated carbon, uses
RL: NUU (Other use, unclassified); USES (Uses)
(activated; purification of impure sulfonic acids in preparation of high purity electrolytic sulfonic acid solns. using)
IT 66-27-3P, Methylmethane sulfonate 2949-92-0P, Methylmethane thiosulfonate 5324-44-7P 37557-96-3P, **Dichloromethylmethylsulfone**

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PUR (Purification or recovery); PREP (Preparation); PROC (Process)
(preparation of high purity **electrolytic** solns. of)
IT 7697-37-2, Nitric acid, reactions 7722-84-1, Hydrogen **peroxide**, reactions 7722-86-3, **Monoperoxysulfuric** acid 7782-50-5, Chlorine, reactions 14333-13-2, Permanganate
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(purification of impure sulfonic acids from low valent sulfur compds. in preparation of high purity **electrolytic** sulfonic acid solns. using)
IT **67-71-0**, **Dimethylsulfone** 75-18-3, Dimethylsulfide 624-92-0, Dimethyldisulfide
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); REM (Removal or disposal); PROC (Process); RACT (Reactant or reagent)
(removing in process of preparation of high purity **electrolytic** solns. of sulfonic acid)
IT **67-71-0**, **Dimethylsulfone**
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); REM (Removal or disposal); PROC (Process); RACT (Reactant or reagent)
(removing in process of preparation of high purity **electrolytic** solns. of sulfonic acid)
RN 67-71-0 HCAPLUS
CN Methane, sulfonylbis- (9CI) (CA INDEX NAME)



RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 8 OF 23 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:203431 HCAPLUS
DN 140:238483
TI Electrolyte for a lithium **battery**
IN Park, Yong-Chul; Jung, Won-Ii; Kim, Geun-Bae; Cho, Jae-Phil; Jung, Cheol-Soo
PA S. Korea
SO U.S. Pat. Appl. Publ., 13 pp.
CODEN: USXXCO
DT Patent
LA English

applicant

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2004048163	A1	20040311	US 2003-656086	20030905
	JP 2004103573	A2	20040402	JP 2003-282119	20030729
	CN 1495961	A	20040512	CN 2003-164853	20030906
PRAI	KR 2002-53879	A	20020906		

OS MARPAT 140:238483
AB An **electrolyte** for a lithium **battery** includes a nonaq. organic solvent, a lithium salt, and an additive comprising (a) a **sulfone**-based compound and (b) a C3-30 organic **peroxide** or **azo**-based compound The **electrolyte** may further include a poly(ester)(meth)acrylate or a polymer that is derived from a (polyester)polyol with at least three hydroxyl (-OH) groups, where a portion or all of the hydroxyl groups are substituted with a (meth)acrylic ester and the remaining hydroxyl groups that are not substituted with the (meth)acrylic ester are substituted with a group having no radical reactivity. The lithium **battery** comprising the **electrolyte** of the present invention has a significantly improved charge-discharge and cycle life characteristics, recovery capacity ratio at high temperature, and swelling inhibition properties.
IC ICM H01M010-40
INCL 429326000; 429329000; 429339000; 429340000
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST lithium **battery** electrolyte
IT **Battery** electrolytes
(electrolyte for lithium **battery**)
IT Aromatic hydrocarbons, uses
Carbonates, uses
Esters, uses
Ethers, uses
Ketones, uses
RL: DEV (Device component use); USES (Uses)
(electrolyte for lithium **battery**)
IT **Azo** compounds
RL: MOA (Modifier or additive use); USES (Uses)

(**electrolyte** for lithium **battery**)
IT Carbonaceous materials (technological products)
RL: MOA (Modifier or additive use); USES (Uses)
(electrolyte for lithium **battery**)
IT **Sulfones**
RL: MOA (Modifier or additive use); USES (Uses)
(**electrolyte** for lithium **battery**)
IT Polyesters, uses
RL: DEV (Device component use); USES (Uses)
(hydroxy-terminated; electrolyte for lithium **battery**)
IT Secondary **batteries**
(lithium; electrolyte for lithium **battery**)
IT Polyesters, uses
RL: DEV (Device component use); USES (Uses)
(**methacrylate**; electrolyte for lithium **battery**)
IT **Peroxides**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(organic, C3-30; **electrolyte** for lithium **battery**)
IT Esters, uses
RL: DEV (Device component use); USES (Uses)
(poly-; electrolyte for lithium **battery**)
IT Imides
Sulfonic acids, uses
RL: DEV (Device component use); USES (Uses)
(sulfonimides, perfluoro derivs., lithium salts; electrolyte for lithium **battery**)
IT 56-81-5, Glycerol, uses **71-43-2**, Benzene, uses **96-49-1**
, Ethylene **carbonate 98-95-3**, Nitrobenzene, uses
105-58-8, Diethyl **carbonate 108-32-7**,
Propylene **carbonate 108-88-3**, Toluene, uses
108-90-7, Chlorobenzene, uses 149-32-6, Erythritol
462-06-6, Fluorobenzene **616-38-6**, Dimethyl
carbonate 623-53-0, Methylethyl **carbonate**
623-96-1, Dipropyl **carbonate 1330-20-7**,
Xylene, uses **4437-85-8**, Butylene **carbonate**
7790-99-0, Iodine chloride (ICl) 7791-03-9, Lithium perchlorate
10377-51-2, Lithium iodide (LiI) 14024-11-4, Lithium
tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 18424-17-4,
Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate
27359-10-0, Trifluorotoluene 29935-35-1, Lithium
hexafluoroarsenate 33454-82-9, Lithium triflate **35363-40-7**,
Ethyl propyl **carbonate** 39300-70-4, Lithium nickel oxide
56525-42-9, Methyl propyl **carbonate** 90076-65-6
131651-65-5, Lithium nonafluorobutanesulfonate 162684-16-4, Lithium
manganese nickel oxide 193215-00-8, Cobalt lithiummanganese nickel oxide
Co0.1LiMn0.2Ni0.7O2
RL: DEV (Device component use); USES (Uses)
(electrolyte for lithium **battery**)
IT **67-71-0**, Methyl **sulfone 77-77-0**, Vinyl
sulfone 78-67-1, 2,2'-**Azobisisobutyronitrile**
94-36-0, Benzoyl **peroxide**, uses **105-64-6**,
Diisopropyl **peroxy dicarbonate 105-74-8**,
Lauroyl **peroxide 126-33-0**, Tetramethylene
sulfone 127-63-9, Phenyl **sulfone**
620-32-6, Benzyl **sulfone 1561-49-5**,
Dicyclohexylperoxy dicarbonate 1712-87-4,
m-Toluoyl **peroxide 3006-82-4**, tert-**Butylperoxy**
-2-ethyl hexanoate **14666-78-5 15520-11-3**,
Bis(4-tert-butylcyclohexyl)**peroxy dicarbonate**
26748-41-4 28452-93-9, Butadiene **sulfone**

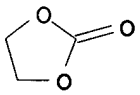
32752-09-3, Isobutyl **peroxide** **92177-99-6**, 3,3,5-Trimethylhexanoyl **peroxide**
RL: MOA (Modifier or additive use); USES (Uses)
(**electrolyte** for lithium **battery**)

IT 79-10-7DP, Acrylic acid, reaction product with dipentaerythritol and ε-caprolactone and **butylcarbonic** acid 126-58-9DP, Dipentaerythritol, reaction product with ε-caprolactone and acrylic acid and **butylcarbonic** acid **502-44-3DP**, ε-Caprolactone, reaction product with dipentaerythritol and acrylic acid and **butylcarbonic** acid **10411-26-4DP**, **MonoButylcarbonate**, reaction product with dipentaerythritol and ε-caprolactone and acrylic acid
RL: MOA (Modifier or additive use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(electrolyte for lithium **battery**)

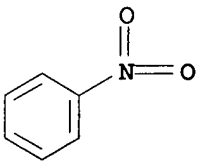
IT **71-43-2**, Benzene, uses **96-49-1**, Ethylene **carbonate** **98-95-3**, Nitrobenzene, uses **105-58-8**, Diethyl **carbonate** **108-32-7**, Propylene **carbonate** **108-88-3**, Toluene, uses **108-90-7**, Chlorobenzene, uses **462-06-6**, Fluorobenzene **616-38-6**, Dimethyl **carbonate** **623-53-0**, Methylethyl **carbonate** **623-96-1**, Dipropyl **carbonate** **1330-20-7**, Xylene, uses **4437-85-8**, Butylene **carbonate** **27359-10-0**, Trifluorotoluene **35363-40-7**, Ethyl propyl **carbonate** **56525-42-9**, Methyl propyl **carbonate**
RL: DEV (Device component use); USES (Uses)
(electrolyte for lithium **battery**)

RN 71-43-2 HCAPLUS
CN Benzene (8CI, 9CI) (CA INDEX NAME)

RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (9CI) (CA INDEX NAME)

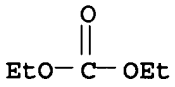


RN 98-95-3 HCAPLUS
CN Benzene, nitro- (8CI, 9CI) (CA INDEX NAME)

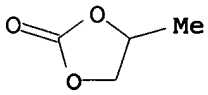


RN 105-58-8 HCAPLUS

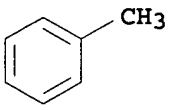
CN Carbonic acid, diethyl ester (6CI, 8CI, 9CI) (CA INDEX NAME)



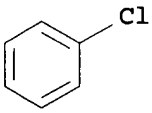
RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (9CI) (CA INDEX NAME)



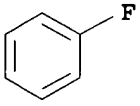
RN 108-88-3 HCAPLUS
CN Benzene, methyl- (9CI) (CA INDEX NAME)



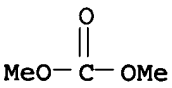
RN 108-90-7 HCAPLUS
CN Benzene, chloro- (8CI, 9CI) (CA INDEX NAME)



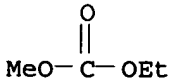
RN 462-06-6 HCAPLUS
CN Benzene, fluoro- (8CI, 9CI) (CA INDEX NAME)



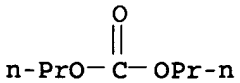
RN 616-38-6 HCAPLUS
CN Carbonic acid, dimethyl ester (6CI, 8CI, 9CI) (CA INDEX NAME)



RN 623-53-0 HCAPLUS
CN Carbonic acid, ethyl methyl ester (7CI, 8CI, 9CI) (CA INDEX NAME)



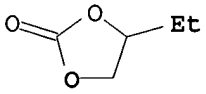
RN 623-96-1 HCAPLUS
CN Carbonic acid, dipropyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



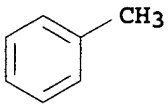
RN 1330-20-7 HCAPLUS
CN Benzene, dimethyl- (9CI) (CA INDEX NAME)

2 (D1—Me)

RN 4437-85-8 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-ethyl- (9CI) (CA INDEX NAME)

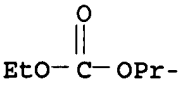


RN 27359-10-0 HCAPLUS
CN Benzene, methyl-, trifluoro deriv. (9CI) (CA INDEX NAME)

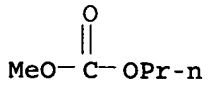


3 (D1—F)

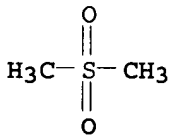
RN 35363-40-7 HCAPLUS
CN Carbonic acid, ethyl propyl ester (7CI, 9CI) (CA INDEX NAME)



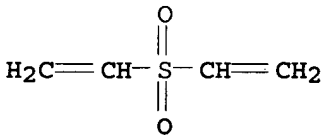
RN 56525-42-9 HCAPLUS
CN Carbonic acid, methyl propyl ester (7CI, 9CI) (CA INDEX NAME)



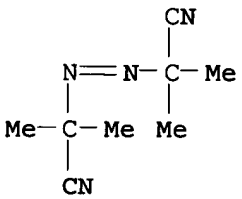
IT **67-71-0**, Methyl **sulfone** **77-77-0**, Vinyl **sulfone** **78-67-1**, 2,2'-**Azobisisobutyronitrile** **94-36-0**, Benzoyl **peroxide**, uses **105-64-6**, Diisopropyl **peroxy dicarbonate** **105-74-8**, Lauroyl **peroxide** **126-33-0**, Tetramethylene **sulfone** **127-63-9**, Phenyl **sulfone** **620-32-6**, Benzyl **sulfone** **1561-49-5**, **Dicyclohexylperoxy dicarbonate** **1712-87-4**, m-Toluoyl **peroxide** **3006-82-4**, tert-**Butylperoxy** -2-ethyl hexanoate **14666-78-5** **15520-11-3**, Bis(4-tert-butylcyclohexyl)**peroxy dicarbonate** **26748-41-4** **28452-93-9**, Butadiene **sulfone** **32752-09-3**, Isobutyl **peroxide** **92177-99-6**, 3,3,5-Trimethylhexanoyl **peroxide**
RL: MOA (Modifier or additive use); USES (Uses)
(**electrolyte** for lithium **battery**)
RN 67-71-0 HCAPLUS
CN Methane, sulfonylbis- (9CI) (CA INDEX NAME)



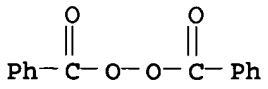
RN 77-77-0 HCAPLUS
CN Ethene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



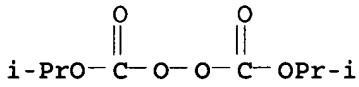
RN 78-67-1 HCAPLUS
CN Propanenitrile, 2,2'-azobis[2-methyl- (9CI) (CA INDEX NAME)



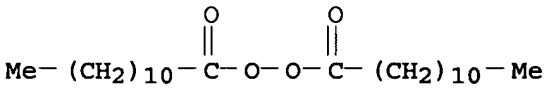
RN 94-36-0 HCAPLUS
CN Peroxide, dibenzoyl (9CI) (CA INDEX NAME)



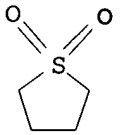
RN 105-64-6 HCAPLUS
CN Peroxydicarbonic acid, bis(1-methylethyl) ester (9CI) (CA INDEX NAME)



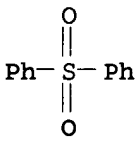
RN 105-74-8 HCAPLUS
CN Peroxide, bis(1-oxododecyl) (9CI) (CA INDEX NAME)



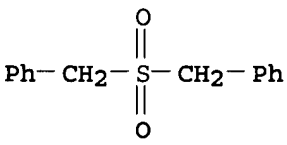
RN 126-33-0 HCAPLUS
CN Thiophene, tetrahydro-, 1,1-dioxide (8CI, 9CI) (CA INDEX NAME)



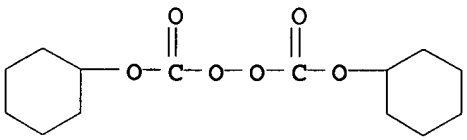
RN 127-63-9 HCAPLUS
CN Benzene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



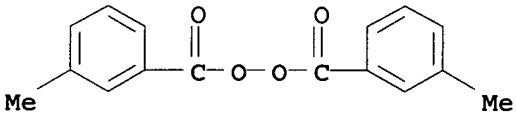
RN 620-32-6 HCAPLUS
CN Benzene, 1,1'-[sulfonylbis(methylene)]bis- (9CI) (CA INDEX NAME)



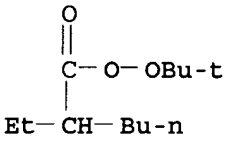
RN 1561-49-5 HCAPLUS
CN Peroxydicarbonic acid, dicyclohexyl ester (6CI, 8CI, 9CI) (CA INDEX NAME)



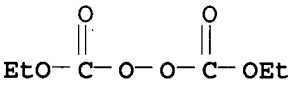
RN 1712-87-4 HCAPLUS
CN Peroxide, bis(3-methylbenzoyl) (9CI) (CA INDEX NAME)



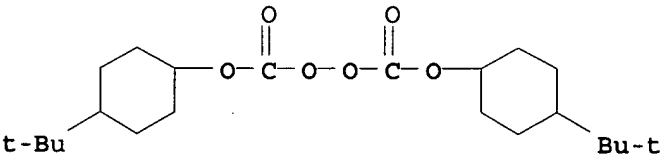
RN 3006-82-4 HCAPLUS
CN Hexaneperoxoic acid, 2-ethyl-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)



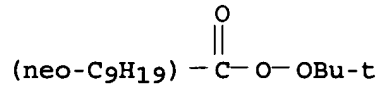
RN 14666-78-5 HCAPLUS
CN Peroxydicarbonic acid, diethyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 15520-11-3 HCAPLUS
CN Peroxydicarbonic acid, bis[4-(1,1-dimethylethyl)cyclohexyl] ester (9CI) (CA INDEX NAME)



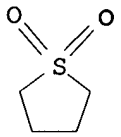
RN 26748-41-4 HCAPLUS
CN Neodecaneperoxoic acid, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)



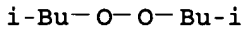
RN 28452-93-9 HCAPLUS
CN Thiophene, dihydro-, 1,1-dioxide (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

CM 1

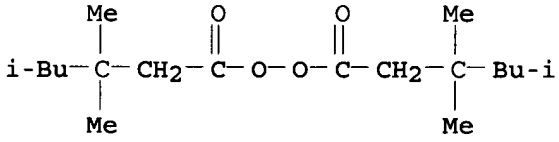
CRN 126-33-0
CMF C4 H8 O2 S



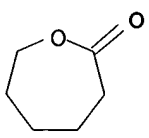
RN 32752-09-3 HCAPLUS
CN Peroxide, bis(2-methylpropyl) (9CI) (CA INDEX NAME)



RN 92177-99-6 HCAPLUS
CN Peroxide, bis(3,3,5-trimethyl-1-oxohexyl) (9CI) (CA INDEX NAME)



IT **502-44-3DP**, ε-Caprolactone, reaction product with dipentaerythritol and acrylic acid and **butylcarbonic** acid **10411-26-4DP**, **MonoButylcarbonate**, reaction product with dipentaerythritol and ε-caprolactone and acrylic acid
RL: MOA (Modifier or additive use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(electrolyte for lithium **battery**)
RN 502-44-3 HCAPLUS
CN 2-Oxepanone (8CI, 9CI) (CA INDEX NAME)



RN 10411-26-4 HCAPLUS
CN Carbonic acid, monobutyl ester (8CI, 9CI) (CA INDEX NAME)

n-Bu—O—CO_2H

L36 ANSWER 9 OF 23 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:119843 HCAPLUS
DN 140:149224
TI Nonaqueous electrolytic solution with improved safety for lithium **battery**
IN Kim, Jun-ho; Lee, Ha-young; Choy, Sang-hoon; Kim, Ho-sung
PA Samsung SDI Co., Ltd., S. Korea
SO U.S. Pat. Appl. Publ., 12 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2004029018	A1	20040212	US 2003-637554	20030811
	JP 2004079532	A2	20040311	JP 2003-290946	20030808
	CN 1495960	A	20040512	CN 2003-158672	20030812
PRAI	KR 2002-47510	A	20020812		

AB A nonaq. electrolytic solution and a lithium **battery** employing the same include a lithium salt, an organic solvent, and a halogenated benzene compound The use of the nonaq. electrolytic solution causes formation of a polymer by oxidative decomposition of the electrolytic solution even if a sharp voltage increase occurs due to overcharging of the **battery**, leading to consumption of an overcharge current, thus protecting the **battery.**
IC ICM H01M010-40
INCL 429326000; 429200000; 429340000; 429331000; 429332000
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST lithium **battery** nonaq electrolyte soln improved safety
IT Esters, uses
Ethers, uses
Hydrocarbons, uses
RL: MOA (Modifier or additive use); USES (Uses)
(C1-20; nonaq. electrolytic solution with improved safety for lithium **battery**)
IT Aromatic hydrocarbons, uses
RL: MOA (Modifier or additive use); USES (Uses)
(C5-20; nonaq. electrolytic solution with improved safety for lithium **battery**)
IT Secondary **batteries**
(lithium; nonaq. electrolytic solution with improved safety for lithium **battery**)
IT **Battery** electrolytes
(nonaq. electrolytic solution with improved safety for lithium **battery**)
IT Polyesters, uses
RL: MOA (Modifier or additive use); USES (Uses)
(nonaq. electrolytic solution with improved safety for lithium **battery**)
IT Alcohols, uses
RL: MOA (Modifier or additive use); USES (Uses)
(polyhydric; nonaq. electrolytic solution with improved safety for lithium **battery**)

IT 3087-37-4, Tetrapropyltitanate
RL: CAT (Catalyst use); USES (Uses)
(nonaq. electrolytic solution with improved safety for lithium **battery**)

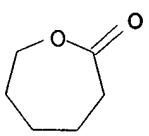
IT **502-44-3**, ε-Caprolactone 7439-93-2D, Lithium, salt
12190-79-3, Cobalt lithium oxide colio2
RL: DEV (Device component use); USES (Uses)
(nonaq. electrolytic solution with improved safety for lithium **battery**)

IT 126-58-9DP, Dipentaerythritol, derivative
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(nonaq. electrolytic solution with improved safety for lithium **battery**)

IT 56-81-5, Glycerol, uses **67-71-0**, Methyl **sulfone**
71-43-2D, Benzene, halogenated **77-77-0**, Vinyl **sulfone** **94-36-0**, **Benzoylperoxide**, uses
96-49-1, Ethylene **carbonate** **105-64-6**,
Diisopropyl **peroxy dicarbonate** **105-74-8**,
Lauroyl **peroxide** **108-32-7**, Propylene **carbonate**
115-77-5, Pentaerythritol, uses **126-33-0**, Tetramethylene **sulfone** 126-58-9, DiPentaerythritol **127-63-9**, Phenyl **sulfone** 456-55-3, Trifluoromethyl phenyl ether **462-06-6**
, Fluorobenzene **620-32-6**, Benzyl **sulfone**
623-53-0, Ethyl methyl **carbonate** **1561-49-5**,
Dicyclohexyl **peroxy dicarbonate** **1712-87-4**,
m-Toluoyl **peroxide** 2972-19-2 **3006-82-4**, tert-**Butylperoxy**-2-ethylhexanoate 9002-88-4, Polyethylene
9003-07-0, Polypropylene **14666-78-5** **15520-11-3**,
Bis(4-tert-butylcyclohexyl) **peroxydicarbonate** 21151-56-4,
Benzene, 1-chloro-4-(chloromethoxy)- 21324-40-3, Lithium hexafluorophosphate **28452-93-9**, Butadiene **sulfone**
32752-09-3, Isobutyl **peroxide** 49717-97-7, 2-Propenoic acid, 2-methyl-, ion(1-) homopolymer, uses **92177-99-6**, 3,3,5-**Trimethylhexanoylperoxide** 651294-25-6 651294-26-7
651294-27-8
RL: MOA (Modifier or additive use); USES (Uses)
(nonaq. **electrolytic** solution with improved safety for lithium **battery**)

IT **502-44-3**, ε-Caprolactone
RL: DEV (Device component use); USES (Uses)
(nonaq. electrolytic solution with improved safety for lithium **battery**)

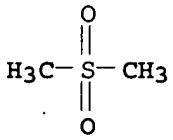
RN 502-44-3 HCAPLUS
CN 2-Oxepanone (8CI, 9CI) (CA INDEX NAME)



IT **67-71-0**, Methyl **sulfone** **71-43-2D**, Benzene, halogenated **77-77-0**, Vinyl **sulfone** **94-36-0**, **Benzoylperoxide**, uses **96-49-1**, Ethylene **carbonate** **105-64-6**, Diisopropyl **peroxy dicarbonate** **105-74-8**, Lauroyl **peroxide** **108-32-7**, Propylene **carbonate** **126-33-0**,

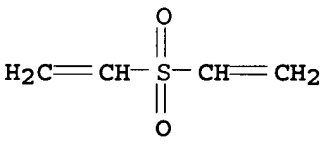
Tetramethylene **sulfone 127-63-9**, Phenyl **sulfone 462-06-6**, Fluorobenzene **620-32-6**, Benzyl **sulfone 623-53-0**, Ethyl methyl **carbonate 1561-49-5**, Dicyclohexyl **peroxy dicarbonate 1712-87-4**, m-Toluoyl **peroxide 3006-82-4**, tert-**Butylperoxy**-2-ethylhexanoate **14666-78-5 15520-11-3**, Bis(4-tert-butylcyclohexyl) **peroxydicarbonate 28452-93-9**, Butadiene **sulfone 32752-09-3**, Isobutyl **peroxide 92177-99-6**, 3,3,5-**Trimethylhexanoylperoxide**
RL: MOA (Modifier or additive use); USES (Uses)
(nonaq. **electrolytic** solution with improved safety for lithium **battery**)

RN 67-71-0 HCAPLUS
CN Methane, sulfonylbis- (9CI) (CA INDEX NAME)

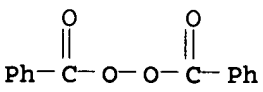


RN 71-43-2 HCAPLUS
CN Benzene (8CI, 9CI) (CA INDEX NAME)

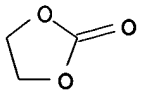
RN 77-77-0 HCAPLUS
CN Ethene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



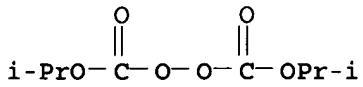
RN 94-36-0 HCAPLUS
CN Peroxide, dibenzoyl (9CI) (CA INDEX NAME)



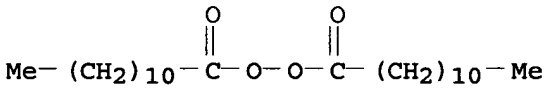
RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (9CI) (CA INDEX NAME)



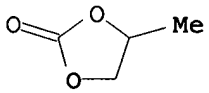
RN 105-64-6 HCAPLUS
CN Peroxydicarbonic acid, bis(1-methylethyl) ester (9CI) (CA INDEX NAME)



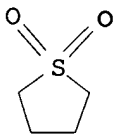
RN 105-74-8 HCAPLUS
CN Peroxide, bis(1-oxododecyl) (9CI) (CA INDEX NAME)



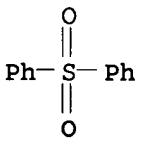
RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (9CI) (CA INDEX NAME)



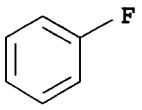
RN 126-33-0 HCAPLUS
CN Thiophene, tetrahydro-, 1,1-dioxide (8CI, 9CI) (CA INDEX NAME)



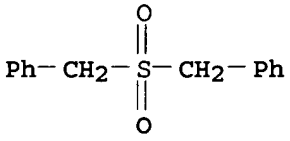
RN 127-63-9 HCAPLUS
CN Benzene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



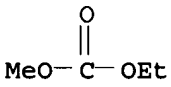
RN 462-06-6 HCAPLUS
CN Benzene, fluoro- (8CI, 9CI) (CA INDEX NAME)



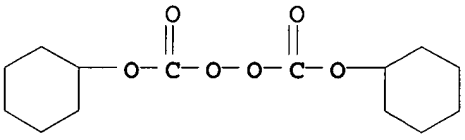
RN 620-32-6 HCAPLUS
CN Benzene, 1,1'-[sulfonylbis(methylene)]bis- (9CI) (CA INDEX NAME)



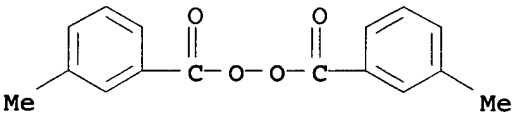
RN 623-53-0 HCAPLUS
CN Carbonic acid, ethyl methyl ester (7CI, 8CI, 9CI) (CA INDEX NAME)



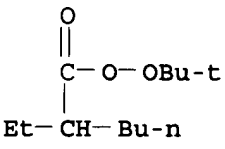
RN 1561-49-5 HCAPLUS
CN Peroxydicarbonic acid, dicyclohexyl ester (6CI, 8CI, 9CI) (CA INDEX NAME)



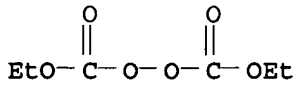
RN 1712-87-4 HCAPLUS
CN Peroxide, bis(3-methylbenzoyl) (9CI) (CA INDEX NAME)



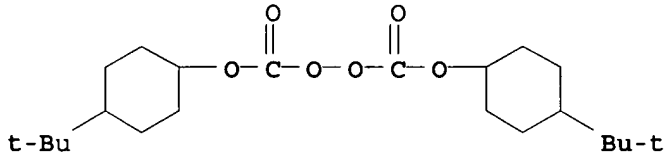
RN 3006-82-4 HCAPLUS
CN Hexaneperoxoic acid, 2-ethyl-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)



RN 14666-78-5 HCAPLUS
CN Peroxydicarbonic acid, diethyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



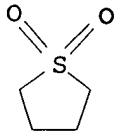
RN 15520-11-3 HCAPLUS
CN Peroxydicarbonic acid, bis[4-(1,1-dimethylethyl)cyclohexyl] ester (9CI) (CA INDEX NAME)



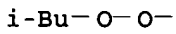
RN 28452-93-9 HCAPLUS
CN Thiophene, dihydro-, 1,1-dioxide (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

CM 1

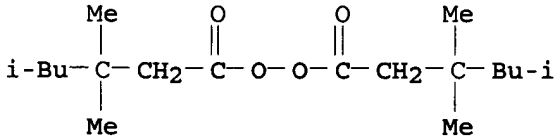
CRN 126-33-0
CMF C4 H8 O2 S



RN 32752-09-3 HCAPLUS
CN Peroxide, bis(2-methylpropyl) (9CI) (CA INDEX NAME)



RN 92177-99-6 HCAPLUS
CN Peroxide, bis(3,3,5-trimethyl-1-oxohexyl) (9CI) (CA INDEX NAME)



L36 ANSWER 10 OF 23 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:95701 HCAPLUS
DN 140:147277

TI Ion-conductive resin compositions and their cured products with excellent flexibility and self-supporting properties
IN Uno, Keiichi
PA Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2004035869	A2	20040205	JP 2002-225355	20020628
PRAI JP 2002-225355		20020628		

AB The compns., useful for solid **electrolyte** films for Li **batteries**, fuel cells, and capacitors, contain monomers (A) bearing polymerizable functional groups and salt units consisting of C1-10 hydrocarbon-(un)substituted ammonium cations (selected from imidazolium, pyrazolium, benzimidazolium, pyridinium, indolium, carbazolium, quinolinium, piperidinium, piperazinium, C1-30-alkylammonium) and anions [selected from BF4, PF6, CnF2n+1O2, CnF2n+1SO3 (n = 1-4), (FSO2)2N(CF3SO2)2N, (CF2F5SO2)2N, (CF3SO2)3CCF3SO2NCOCF3, RSO3, RSO2NSO2CF3 (R = aliphatic or aromatic group)], monomers (B) bearing ≥2 polymerizable functional groups, solvent-soluble resins (C), and polymerization initiators (D) at the molar ratio of A/B 99.5/0.5-80/20 and the weight ratio of (A + B)/C 99/1-20/80. Thus, a composition containing 1-ethyl-3-allylimidazolium bis[(trifluoromethyl)sulfonyl]amide 30, diallyl phthalate 0.98, Kynar 2801 (vinylidene fluoride-hexafluoropropylene copolymer) 10, and benzoyl **peroxide** 1.5 g was cast on a glass plate and cured at 100° for 5 min and at 130° for 30 min to give a film with sufficient toughness and ion conductivity 3.9 + 10-3 S/cm.

IC ICM C08F002-44
ICS C08F291-00
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): **52**
ST ion cond solid electrolyte film toughness; allylimidazolium salt copolymer film flexibility capacitor; ammonium salt polymn film fuel cell
IT Isoprene-styrene rubber
RL: TEM (Technical or engineered material use); USES (Uses)
(hydrogenated, block, diblock, Kraton G 1701, organic solvent-soluble resin; ion-conductive resin compns. for solid electrolyte films with good flexibility and self-supporting properties)
IT Ionic conductors
Solid electrolytes
(ion-conductive resin compns. for solid electrolyte films with good flexibility and self-supporting properties)
IT **Polysulfones**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyether-, organic solvent-soluble resin; ion-conductive resin compns. for solid **electrolyte** films with good flexibility and self-supporting properties)
IT Polyethers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**polysulfone**-, organic solvent-soluble resin; ion-conductive resin compns. for solid **electrolyte** films with good flexibility and self-supporting properties)
IT 34311-88-1P 652134-09-3P 652134-14-0P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(for monomer preparation; ion-conductive resin compns. for solid electrolyte films with good flexibility and self-supporting properties)

IT 51-17-2, Benzimidazole 74-96-4, Ethyl bromide 98-70-4, 4-Styrenesulfonic acid 106-95-6, Allyl bromide, reactions 1072-63-5, 1-Vinylimidazole 1592-20-7, 4-Chloromethylstyrene 7098-07-9, 1-Ethylimidazole 90076-67-8
RL: RCT (Reactant); RACT (Reactant or reagent)
(for monomer preparation; ion-conductive resin compns. for solid electrolyte films with good flexibility and self-supporting properties)

IT 652134-12-8P 652134-13-9P 652134-15-1P 652134-17-3P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(ion-conductive resin compns. for solid electrolyte films with good flexibility and self-supporting properties)

IT 105729-79-1 694523-05-2
RL: TEM (Technical or engineered material use); USES (Uses)
(isoprene-styrene rubber, hydrogenated, block, diblock, Kraton G 1701, organic solvent-soluble resin; ion-conductive resin compns. for solid electrolyte films with good flexibility and self-supporting properties)

IT 319476-28-3P 652129-54-9P 652134-11-7P 652134-16-2P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(monomer; ion-conductive resin compns. for solid electrolyte films with good flexibility and self-supporting properties)

IT 9011-17-0, Kynar 2801 25135-51-7, Udel P 3500
RL: TEM (Technical or engineered material use); USES (Uses)
(organic solvent-soluble resin; ion-conductive resin compns. for solid electrolyte films with good flexibility and self-supporting properties)

L36 ANSWER 11 OF 23 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:44652 HCAPLUS
DN 140:342007
TI Proton conducting membranes based on polymer blends for use in high temperature PEM fuel cells
AU Kallitsis, Joannis K.; Gourdoupi, Nora
CS Department of Chemistry, University of Patras, GR-265 00, Greece
SO Journal of New Materials for Electrochemical Systems (2003), 6(4), 217-222
CODEN: JMESFQ; ISSN: 1480-2422
PB Journal of New Materials for Electrochemical Systems
DT Journal
LA English
AB Blends of sulfonated **polysulfone** (SPSF) with either polybenzimidazole (PBI) or an aromatic polyether composed of pyridine and Ph phosphinoxide units (PPyPO) were developed; they possessed promising properties for exploitation as high temperature polymer **electrolytes.** All blends exhibited good mech. and thermal stability and high ionic conductivities in the range of 10-2 S/cm after doping with phosphoric acid. Examination of the oxidative stability of the membranes was performed using hydrogen **peroxide** in the presence of a catalytic amount of FeCl2, and SPSF/PBI blends show low oxidative stability, even with 5% weight PBI, while the SPSF/PPyPO blends showed improved properties concerning their tolerance towards oxidative conditions. Finally, a preliminary work on a PBI/PPyPO blend is reported. Initial results such as oxidative stability and high ionic conductivity (10-2 S/cm) of this blend are encouraging for further exploitation of this system.
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 35, 36, 38, 76
ST proton conducting membrane polymer blend **electrolyte** PEM fuel cell; polybenzimidazole polyether **polysulfone** pyridinyl phosphine ionic cond phosphate doped
IT Polyethers, uses

RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(aromatic; proton conducting membranes based on polymer blends for use in high temperature PEM fuel cells)

IT Membranes, nonbiological
(elec. conductive; proton conducting membranes based on polymer blends for use in high temperature PEM fuel cells)

IT Glass transition temperature
Ionic conductivity
Loss modulus
Storage modulus
(of phosphate-doped polymer blends; proton conducting membranes based on polymer blends for use in high temperature PEM fuel cells)

IT Stability
(oxidative; proton conducting membranes based on polymer blends for use in high temperature PEM fuel cells)

IT Polyketones
Polysulfones, uses
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(polyether-, sulfonated; proton conducting membranes based on polymer blends for use in high temperature PEM fuel cells)

IT Polyethers, uses
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(polyketone-, sulfonated; proton conducting membranes based on polymer blends for use in high temperature PEM fuel cells)

IT Polyethers, uses
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(polysulfone-, sulfonated; proton conducting membranes based on polymer blends for use in high temperature PEM fuel cells)

IT Polymer electrolytes
(proton conducting membranes based on polymer blends for use in high temperature PEM fuel cells)

IT Polybenzimidazoles
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(proton conducting membranes based on polymer blends for use in high temperature PEM fuel cells)

IT Polysulfones, uses
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(sulfonated; proton conducting membranes based on polymer blends for use in high temperature PEM fuel cells)

IT 28576-59-2, Poly(2,2'-p-phenylene-5,5'-bibenzimidazole)
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(PBI, blends with PPyPO, phosphoric acid-doped; proton conducting membranes based on polymer blends for use in high temperature PEM fuel cells)

IT 643753-97-3, Phenol, 4,4'-(2,5-pyridinediyl)bis-, polymer with bis(4-fluorophenyl)phenylphosphine oxide
RL: PEP (Physical, engineering or chemical process); POF (Polymer in

formulation); PRP (Properties); PYP (Physical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(PPyPO, medium and high Mw, blends with PBI or SPSF(Na)x, phosphoric acid-doped; proton conducting membranes based on polymer blends for use in high temperature PEM fuel cells)

IT 25135-51-7D, sulfonated, sodium salt
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(SPSF(Na)x, blends with PPyPO, phosphoric acid-doped; proton conducting membranes based on polymer blends for use in high temperature PEM fuel cells)

IT 7664-38-2, Phosphoric acid, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(dopant; proton conducting membranes based on polymer blends for use in high temperature PEM fuel cells)

IT 7722-84-1, Hydrogen peroxide, reactions 7758-94-3, Ferrous chloride
RL: RCT (Reactant); RACT (Reactant or reagent)
(proton conducting membranes based on polymer blends for use in high temperature PEM fuel cells)

RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 12 OF 23 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2003:796195 HCAPLUS
DN 139:294681
TI Electrolyte for lithium **battery** to reduce overcharge and improve electrochemical characteristics
IN Kim, Jun-Ho; Lee, Ha-Young; Choy, Sang-Hoon; Kim, Ho-Sung; Noh, Hyeong-Gon
PA Samsung SDI Co., Ltd., S. Korea
SO U.S. Pat. Appl. Publ., 19 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003190529	A1	20031009	US 2003-393294	20030321
	KR 2003079310	A	20031010	KR 2002-18264	20020403
	CN 1449070	A	20031015	CN 2003-108529	20030328
	JP 2003297426	A2	20031017	JP 2003-100349	20030403
PRAI	KR 2002-18264	A	20020403		

OS MARPAT 139:294681
AB An **electrolyte** for a lithium **battery** includes a nonaq. organic solvent, a lithium salt, and an additive comprising (a) a compound represented by the formula [(R1)nC6H(6-n+m)(X)m], and (b) a compound selected from the group consisting of a **sulfone**-based compound, a poly(ester)(meth)acrylate, a polymer of poly(ester)(meth)acrylate, and a mixture thereof: wherein R1 is a C1-10 alkyl, a C 1-10 alkoxy, or a C6-10 aryl, and preferably a Me, Et, or methoxy, X is a halogen, and m and n are integers ranging from 1 to 5, where m+n is less than or equal to 6.
IC ICM H01M006-18
INCL 429307000; 429309000; 429326000; 429322000; 429323000; 429330000
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST lithium **battery** electrolyte overcharge lowering
IT **Battery** electrolytes
(electrolyte for lithium **battery** to reduce overcharge and improve electrochem. characteristics)
IT Secondary **batteries**
(lithium; electrolyte for lithium **battery** to reduce

overcharge and improve electrochem. characteristics)

IT **Peroxides**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(organic; **electrolyte** for lithium **battery** to reduce overcharge and improve electrochem. characteristics)

IT Alcohols, uses
RL: MOA (Modifier or additive use); USES (Uses)
(trihydric; electrolyte for lithium **battery** to reduce overcharge and improve electrochem. characteristics)

IT 3087-37-4, Tetrapropyltitanate
RL: CAT (Catalyst use); USES (Uses)
(electrolyte for lithium **battery** to reduce overcharge and improve electrochem. characteristics)

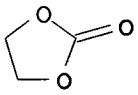
IT **71-43-2**, Benzene, uses **96-49-1**, Ethylene **carbonate 105-58-8**, Diethyl **carbonate 108-32-7**, Propylene **carbonate 108-88-3**, Toluene, uses **462-06-6**, Fluorobenzene **616-38-6**, Dimethyl **carbonate 623-53-0**, Ethyl methyl **carbonate 623-96-1**, Dipropyl **carbonate 1330-20-7**, Xylene, uses **4437-85-8**, Butylene **carbonate** 7447-41-8, Lithium chloride (LiCl), uses 7791-03-9, Lithium perchlorate 10377-51-2, Lithium iodide (LiI) 12355-58-7, Lithium aluminate (Li_5AlO_4) 14283-07-9, Lithium tetrafluoroborate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate **27359-10-0**, Trifluorotoluene 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate **35363-40-7**, Ethyl propyl **carbonate 56525-42-9**, Methyl propyl **carbonate** 90076-65-6 131651-65-5, Lithium perfluorobutanesulfonate
RL: DEV (Device component use); USES (Uses)
(electrolyte for lithium **battery** to reduce overcharge and improve electrochem. characteristics)

IT 126-58-9DP, Dipentaerythritol, reaction product with ε-caprolactone **502-44-3DP**, ε-Caprolactone, reaction product with dipentaerythritol 609772-45-4P
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(electrolyte for lithium **battery** to reduce overcharge and improve electrochem. characteristics)

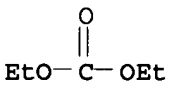
IT 56-81-5, Glycerol, uses **67-71-0**, Methyl **sulfone 77-77-0**, Vinyl **sulfone** 79-10-7D, Acrylic acid, ω-fatty acid esters C2-C21 79-41-4D, **Methacrylic** acid, ω-fatty acid esters C2-C21 **94-36-0**, Benzoyl **peroxide**, uses 104-92-7, 4-Bromoanisole **105-64-6**, Diisopropyl **peroxy dicarbonate 105-74-8**, Lauroyl **peroxide 126-33-0**, Tetramethylene **sulfone 127-63-9**, Phenyl **sulfone** 149-32-6, Erythritol 452-10-8, 2,4-Difluoroanisole 456-49-5, 3-Fluoroanisole 459-60-9, 4-Fluoroanisole **620-32-6**, Benzyl **sulfone** 623-12-1, 4-Chloroanisole **1561-49-5**, Dicyclohexyl **peroxy dicarbonate 1712-87-4**, m-Toluoyl **peroxide** 2398-37-0, 3-Bromoanisole 2845-89-8, 3-Chloroanisole **3006-82-4**, tert-**Butylperoxy**-2-ethyl-hexanoate **14666-78-5 15520-11-3**, Bis(4-tert-butylcyclohexyl)**peroxy dicarbonate 28452-93-9**, Butadiene **sulfone 32752-09-3**, Isobutyl **peroxide 92177-99-6**, 3,3,5-Trimethylhexanoyl **peroxide** 93343-10-3, 3,5-Difluoroanisole 202925-08-4, 3-Chloro-5-fluoroanisole 609365-67-5
RL: MOA (Modifier or additive use); USES (Uses)
(**electrolyte** for lithium **battery** to reduce

overcharge and improve electrochem. characteristics)
IT **71-43-2**, Benzene, uses **96-49-1**, Ethylene **carbonate 105-58-8**, Diethyl **carbonate 108-32-7**, Propylene **carbonate 108-88-3**, Toluene, uses **462-06-6**, Fluorobenzene **616-38-6**, Dimethyl **carbonate 623-53-0**, Ethyl methyl **carbonate 623-96-1**, Dipropyl **carbonate 1330-20-7**, Xylene, uses **4437-85-8**, Butylene **carbonate 27359-10-0**, Trifluorotoluene **35363-40-7**, Ethyl propyl **carbonate 56525-42-9**, Methyl propyl **carbonate**
RL: DEV (Device component use); USES (Uses)
(electrolyte for lithium **battery** to reduce overcharge and improve electrochem. characteristics)
RN 71-43-2 HCAPLUS
CN Benzene (8CI, 9CI) (CA INDEX NAME)

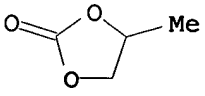
RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (9CI) (CA INDEX NAME)



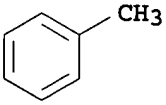
RN 105-58-8 HCAPLUS
CN Carbonic acid, diethyl ester (6CI, 8CI, 9CI) (CA INDEX NAME)



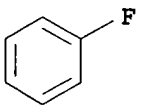
RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (9CI) (CA INDEX NAME)



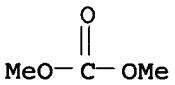
RN 108-88-3 HCAPLUS
CN Benzene, methyl- (9CI) (CA INDEX NAME)



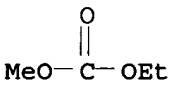
RN 462-06-6 HCAPLUS
CN Benzene, fluoro- (8CI, 9CI) (CA INDEX NAME)



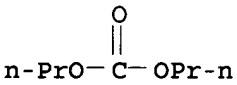
RN 616-38-6 HCAPLUS
CN Carbonic acid, dimethyl ester (6CI, 8CI, 9CI) (CA INDEX NAME)



RN 623-53-0 HCAPLUS
CN Carbonic acid, ethyl methyl ester (7CI, 8CI, 9CI) (CA INDEX NAME)



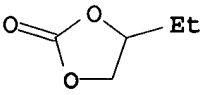
RN 623-96-1 HCAPLUS
CN Carbonic acid, dipropyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



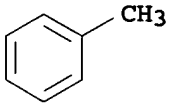
RN 1330-20-7 HCAPLUS
CN Benzene, dimethyl- (9CI) (CA INDEX NAME)

2 (D1—Me)

RN 4437-85-8 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-ethyl- (9CI) (CA INDEX NAME)

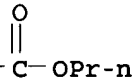


RN 27359-10-0 HCAPLUS
CN Benzene, methyl-, trifluoro deriv. (9CI) (CA INDEX NAME)

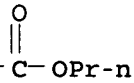


3 (D1—F)

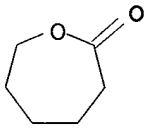
RN 35363-40-7 HCAPLUS
CN Carbonic acid, ethyl propyl ester (7CI, 9CI) (CA INDEX NAME)



RN 56525-42-9 HCAPLUS
CN Carbonic acid, methyl propyl ester (7CI, 9CI) (CA INDEX NAME)



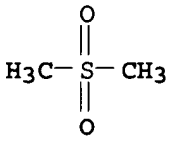
IT **502-44-3DP**, ε-Caprolactone, reaction product with dipentaerythritol
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(electrolyte for lithium **battery** to reduce overcharge and improve electrochem. characteristics)
RN 502-44-3 HCAPLUS
CN 2-Oxepanone (8CI, 9CI) (CA INDEX NAME)



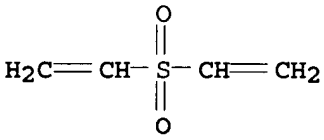
IT **67-71-0**, Methyl **sulfone 77-77-0**, Vinyl **sulfone 94-36-0**, Benzoyl **peroxide**, uses **105-64-6**, Diisopropyl **peroxy dicarbonate** **105-74-8**, Lauroyl **peroxide 126-33-0**, Tetramethylene **sulfone 127-63-9**, Phenyl **sulfone 620-32-6**, Benzyl **sulfone** **1561-49-5**, Dicyclohexyl **peroxy dicarbonate** **1712-87-4**, m-Toluoyl **peroxide 3006-82-4**, tert-**Butylperoxy**-2-ethyl-hexanoate **14666-78-5** **15520-11-3**, Bis(4-tert-butylcyclohexyl)**peroxy**

dicarbonate 28452-93-9, Butadiene **sulfone**
32752-09-3, Isobutyl **peroxide 92177-99-6**,
3,3,5-Trimethylhexanoyl **peroxide**
RL: MOA (Modifier or additive use); USES (Uses)
(**electrolyte** for lithium **battery** to reduce
overcharge and improve electrochem. characteristics)

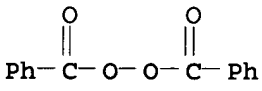
RN 67-71-0 HCAPLUS
CN Methane, sulfonylbis- (9CI) (CA INDEX NAME)



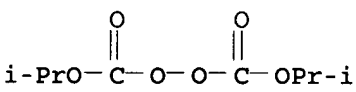
RN 77-77-0 HCAPLUS
CN Ethene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



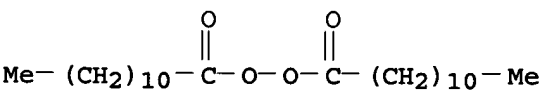
RN 94-36-0 HCAPLUS
CN Peroxide, dibenzoyl (9CI) (CA INDEX NAME)



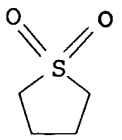
RN 105-64-6 HCAPLUS
CN Peroxydicarbonic acid, bis(1-methylethyl) ester (9CI) (CA INDEX NAME)



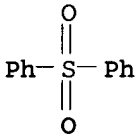
RN 105-74-8 HCAPLUS
CN Peroxide, bis(1-oxododecyl) (9CI) (CA INDEX NAME)



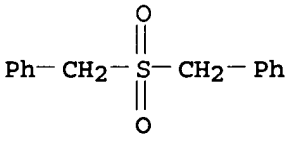
RN 126-33-0 HCAPLUS
CN Thiophene, tetrahydro-, 1,1-dioxide (8CI, 9CI) (CA INDEX NAME)



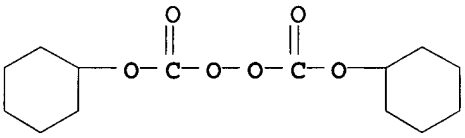
RN 127-63-9 HCAPLUS
CN Benzene, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



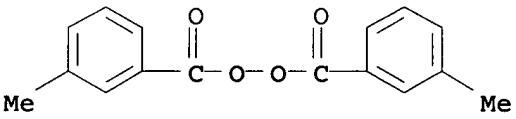
RN 620-32-6 HCAPLUS
CN Benzene, 1,1'-[sulfonylbis(methylene)]bis- (9CI) (CA INDEX NAME)



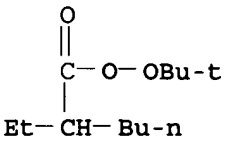
RN 1561-49-5 HCAPLUS
CN Peroxydicarbonic acid, dicyclohexyl ester (6CI, 8CI, 9CI) (CA INDEX NAME)



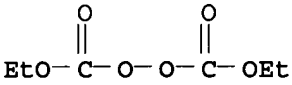
RN 1712-87-4 HCAPLUS
CN Peroxide, bis(3-methylbenzoyl) (9CI) (CA INDEX NAME)



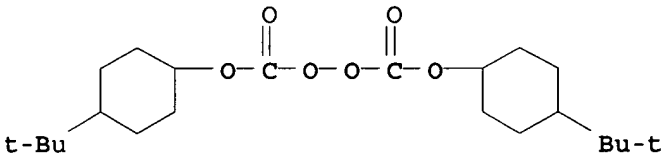
RN 3006-82-4 HCAPLUS
CN Hexaneperoxoic acid, 2-ethyl-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)



RN 14666-78-5 HCAPLUS
CN Peroxydicarbonic acid, diethyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



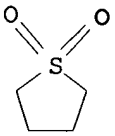
RN 15520-11-3 HCAPLUS
CN Peroxydicarbonic acid, bis[4-(1,1-dimethylethyl)cyclohexyl] ester (9CI) (CA INDEX NAME)



RN 28452-93-9 HCAPLUS
CN Thiophene, dihydro-, 1,1-dioxide (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

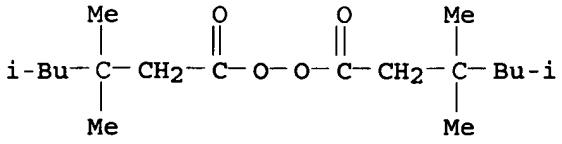
CM 1

CRN 126-33-0
CMF C4 H8 O2 S



RN 32752-09-3 HCAPLUS
CN Peroxide, bis(2-methylpropyl) (9CI) (CA INDEX NAME)

RN 92177-99-6 HCAPLUS
CN Peroxide, bis(3,3,5-trimethyl-1-oxohexyl) (9CI) (CA INDEX NAME)



L36 ANSWER 13 OF 23 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2003:727549 HCAPLUS
DN 139:397889
TI Oxygen Transport Properties of Organic Electrolytes and Performance of Lithium/Oxygen **Battery**
AU Read, J.; Mutolo, K.; Ervin, M.; Behl, W.; Wolfenstine, J.; Driedger, A.; Foster, D.
CS US Army Research Laboratory, AMSRL-SE-DC, Adelphi, MD, 20783-1197, USA
SO Journal of the Electrochemical Society (2003), 150(10), A1351-A1356
CODEN: JESOAN; ISSN: 0013-4651
PB Electrochemical Society
DT Journal
LA English
AB The oxygen transport properties of several organic electrolytes were characterized through measurements of oxygen solubility and electrolyte viscosity. Oxygen diffusion coeffs. were calculated from electrolyte viscosities using the Stokes-Einstein relation. Oxygen solubility, electrolyte viscosity, and oxygen partial pressure were all directly correlated to discharge capacity and rate capability. Substantial improvement in cell performance was achieved through electrolyte optimization and increased oxygen partial pressure. The concentration of oxygen in the electrode under discharge was calculated using a semi-infinite medium model with simultaneous diffusion and reaction. The model was used to explain the dependence of cell performance on oxygen transport in organic electrolyte.
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 45, 72, 76
ST oxygen diffusion lithium **battery** electrolyte soly viscosity oxide capacity
IT Solubility
(Bunsen coeffs. of oxygen in solvents and lithium salt/solvent electrolyte mixts.; oxygen transport properties of organic electrolytes and performance of lithium/oxygen **battery**)
IT Fluoropolymers, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(composite cathode with Super P; oxygen transport properties of organic electrolytes and performance of lithium/oxygen **battery**)
IT Primary **batteries**
(lithium; oxygen transport properties of organic electrolytes and performance of lithium/oxygen **battery**)
IT Electric impedance
(of **batteries** with various electrolyte solns.; oxygen transport properties of organic electrolytes and performance of lithium/oxygen **battery**)
IT Ionic conductivity
Viscosity
(of lithium salt/solvent electrolyte mixts.; oxygen transport properties of organic electrolytes and performance of lithium/oxygen **battery**)
IT Absorption

(of oxygen by electrolyte solns.; oxygen transport properties of organic electrolytes and performance of lithium/oxygen **battery**)

IT **Battery** electrolytes
(oxygen transport properties of organic electrolytes and performance of lithium/oxygen **battery**)

IT Diffusion
(oxygen; oxygen transport properties of organic electrolytes and performance of lithium/oxygen **battery**)

IT Electric energy
(specific discharge capacity; oxygen transport properties of organic electrolytes and performance of lithium/oxygen **battery**)

IT 7440-44-0, Super P, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(activated, composite cathode with PTFE; oxygen transport properties of organic electrolytes and performance of lithium/oxygen **battery**)

IT 7429-90-5, Aluminum, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(cathode support and current collectors; oxygen transport properties of organic electrolytes and performance of lithium/oxygen **battery**)

IT 9002-84-0, PTFE
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(composite cathode with Super P; oxygen transport properties of organic electrolytes and performance of lithium/oxygen **battery**)

IT 7782-44-7, Oxygen, uses
RL: PRP (Properties); RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(diffusion; oxygen transport properties of organic electrolytes and performance of lithium/oxygen **battery**)

IT 21324-40-3, Lithium hexafluorophosphate (LiPF6)
RL: DEV (Device component use); PRP (Properties); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(electrolyte solute; oxygen transport properties of organic electrolytes and performance of lithium/oxygen **battery**)

IT 67-68-5, Dimethyl sulfoxide, uses 96-48-0, γ-Butyrolactone **96-49-1**, Ethylene **carbonate 105-58-8**, Diethyl **carbonate 108-32-7**, Propylene **carbonate** 109-99-9, Tetrahydrofuran, uses 110-71-4, 1,2-Dimethoxyethane 112-49-2, Triethylene glycol dimethyl ether **126-33-0**, Tetramethylene **sulfone** 143-24-8, Tetraethylene glycol dimethyl ether **616-38-6**, Dimethyl **carbonate 623-53-0**, Ethyl methyl **carbonate 623-96-1**, Dipropyl **carbonate** 872-50-4, uses
RL: DEV (Device component use); PRP (Properties); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(**electrolyte** solvent; oxygen transport properties of organic **electrolytes** and performance of lithium/oxygen **battery**)

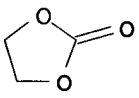
IT 12031-80-0, Lithium **peroxide** (Li2O2) 12057-24-8, Lithium oxide (Li2O), formation (nonpreparative)
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(film formed on cathode to kill discharge; oxygen transport properties of organic **electrolytes** and performance of lithium/oxygen **battery**)

IT 7439-93-2, Lithium, uses
RL: DEV (Device component use); USES (Uses)
(oxygen transport properties of organic electrolytes and performance of lithium/oxygen **battery**)

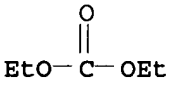
IT 7440-02-0, Nickel, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(oxygen transport properties of organic electrolytes and performance of lithium/oxygen **battery**)

IT **96-49-1**, Ethylene **carbonate 105-58-8**, Diethyl **carbonate 108-32-7**, Propylene **carbonate 126-33-0**, Tetramethylene **sulfone 616-38-6**, Dimethyl **carbonate 623-53-0**, Ethyl methyl **carbonate 623-96-1**, Dipropyl **carbonate**
RL: DEV (Device component use); PRP (Properties); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(**electrolyte** solvent; oxygen transport properties of organic **electrolytes** and performance of lithium/oxygen **battery**)

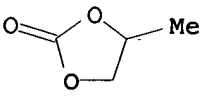
RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (9CI) (CA INDEX NAME)



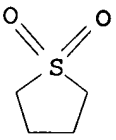
RN 105-58-8 HCAPLUS
CN Carbonic acid, diethyl ester (6CI, 8CI, 9CI) (CA INDEX NAME)



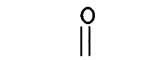
RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (9CI) (CA INDEX NAME)



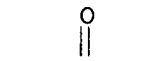
RN 126-33-0 HCAPLUS
CN Thiophene, tetrahydro-, 1,1-dioxide (8CI, 9CI) (CA INDEX NAME)



RN 616-38-6 HCAPLUS
CN Carbonic acid, dimethyl ester (6CI, 8CI, 9CI) (CA INDEX NAME)



RN 623-53-0 HCAPLUS
CN Carbonic acid, ethyl methyl ester (7CI, 8CI, 9CI) (CA INDEX NAME)



RN 623-96-1 HCAPLUS
CN Carbonic acid, dipropyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

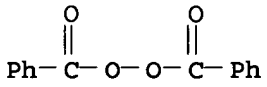
L36 ANSWER 14 OF 23 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2003:656287 HCAPLUS
DN 139:182872
TI Polymer electrolyte for lithium secondary **battery**
IN Jung, Cheol-Soo; Kim, Ki-Ho; Bong, Cul-Hwen; Yang, Doo-Kyung; Lee, Kyoung-Hee; Lee, Yong-Beom; Lim, Hyun-Leong; Yamaguchi, Takitaro; Shimizu, Ryuichi
PA Samsung SDI Co., Ltd., S. Korea
SO U.S. Pat. Appl. Publ., 14 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003157411	A1	20030821	US 2002-287486	20021105
	KR 2003068714	A	20030825	KR 2002-8303	20020216
	JP 2003249264	A2	20030905	JP 2003-31544	20030207
	CN 1438727	A	20030827	CN 2003-103890	20030214
PRAI	KR 2002-8303	A	20020216		

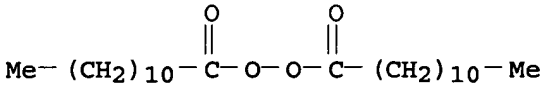
AB A solid polymer **electrolyte**, a lithium **battery** employing the same, and methods of forming the **electrolyte** and the lithium **battery** are disclosed. The polymer **electrolyte** includes polyester **methacrylate** having a polyester polyol moiety having three or more hydroxide (-OH) groups, at least one hydroxde group being substituted by a **methacrylic** ester group and at least one hydroxide group being substituted by a radical non-reactive group, or its polymer, a **peroxide** having 6-40 carbon atoms, and an **electrolytic** solution including a lithium salt and an organic solvent.

IC ICM H01M010-40
ICS H01M010-04
INCL 429317000; 429307000; 429316000; 029623100

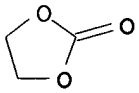
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST polymer electrolyte lithium secondary **battery**
IT Aromatic hydrocarbons, uses
RL: MOA (Modifier or additive use); USES (Uses)
(fluoro; polymer electrolyte for lithium secondary **battery**)
IT Secondary **batteries**
(lithium; polymer electrolyte for lithium secondary **battery**)
IT **Battery** electrolytes
Polymer electrolytes
(polymer electrolyte for lithium secondary **battery**)
IT Polyesters, uses
RL: DEV (Device component use); USES (Uses)
(polymer electrolyte for lithium secondary **battery**)
IT 3087-37-4, Tetrapropyltitanate
RL: CAT (Catalyst use); USES (Uses)
(polymer electrolyte for lithium secondary **battery**)
IT **94-36-0**, Benzoyl **peroxide**, processes **105-74-8**, Lauroyl **peroxide**
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(polymer **electrolyte** for lithium secondary **battery**)
IT 67-68-5, Dmso, uses 68-12-2, Dmf, uses 75-05-8, Acetonitrile, uses 96-47-9, 2-Methyltetrahydrofuran 96-48-0, γ-Butyrolactone **96-49-1**, Ethylene **carbonate 98-95-3**, Nitrobenzene, uses 100-47-0, Benzonitrile, uses **105-58-8**, Diethyl **carbonate 108-32-7**, Propylene **carbonate 108-90-7**, Chlorobenzene, uses 109-99-9, Thf, uses 110-71-4, 1,2-Dimethoxyethane 111-46-6, Diethylene glycol, uses 115-10-6, Dimethyl ether **126-33-0**, Sulfolane 127-19-5, Dimethylacetamide 542-52-9, Dibutyl **carbonate 616-38-6**, Dimethyl **carbonate 623-53-0**, Ethyl methyl **carbonate 623-96-1**, Dipropyl **carbonate** 646-06-0, Dioxolane 872-36-6, Vinylene **carbonate** 1072-47-5, 1,3-Dioxolane, 4-methyl 1300-21-6, Dichloroethane **4437-85-8**, Butylene **carbonate** 6482-34-4, Diisopropyl **carbonate** 7447-41-8, Lithium chloride (LiCl), uses 7791-03-9, Lithium perchlorate 9002-88-4, Polyethylene 9003-07-0, Polypropylene 10377-51-2, Lithium iodide (LiI) 14024-11-4, Aluminum lithium chloride allicl4 14283-07-9, Lithium tetrafluoroborate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 30714-78-4, Ethyl butyl **carbonate** 33454-82-9, Lithium triflate 51729-83-0, Methyl isopropyl **carbonate 56525-42-9**, Methyl propyl **carbonate** 90076-65-6 131651-65-5
RL: DEV (Device component use); USES (Uses)
(polymer **electrolyte** for lithium secondary **battery**)
IT 95-52-3, 2-Fluorotoluene 352-32-9, 4-Fluorotoluene 352-70-5, 3-Fluorotoluene **462-06-6**, Benzene, fluoro- 581054-59-3D, mixed acrylic and pentanoic acid esters
RL: MOA (Modifier or additive use); USES (Uses)
(polymer electrolyte for lithium secondary **battery**)
IT **94-36-0**, Benzoyl **peroxide**, processes **105-74-8**, Lauroyl **peroxide**
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(polymer **electrolyte** for lithium secondary **battery**)
RN 94-36-0 HCAPLUS
CN Peroxide, dibenzoyl (9CI) (CA INDEX NAME)



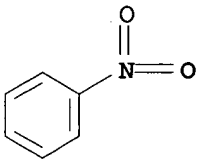
RN 105-74-8 HCAPLUS
CN Peroxide, bis(1-oxododecyl) (9CI) (CA INDEX NAME)



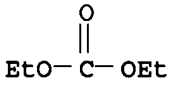
IT **96-49-1**, Ethylene **carbonate 98-95-3**, Nitrobenzene, uses **105-58-8**, Diethyl **carbonate 108-32-7**, Propylene **carbonate 108-90-7**, Chlorobenzene, uses **126-33-0**, Sulfolane **616-38-6**, Dimethyl **carbonate 623-53-0**, Ethyl methyl **carbonate 623-96-1**, Dipropyl **carbonate 4437-85-8**, Butylene **carbonate 56525-42-9**, Methyl propyl **carbonate**
RL: DEV (Device component use); USES (Uses)
(polymer **electrolyte** for lithium secondary **battery**)
RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (9CI) (CA INDEX NAME)



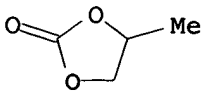
RN 98-95-3 HCAPLUS
CN Benzene, nitro- (8CI, 9CI) (CA INDEX NAME)



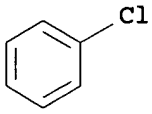
RN 105-58-8 HCAPLUS
CN Carbonic acid, diethyl ester (6CI, 8CI, 9CI) (CA INDEX NAME)



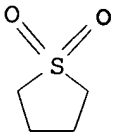
RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (9CI) (CA INDEX NAME)



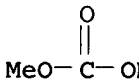
RN 108-90-7 HCAPLUS
CN Benzene, chloro- (8CI, 9CI) (CA INDEX NAME)



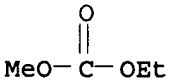
RN 126-33-0 HCAPLUS
CN Thiophene, tetrahydro-, 1,1-dioxide (8CI, 9CI) (CA INDEX NAME)



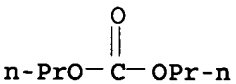
RN 616-38-6 HCAPLUS
CN Carbonic acid, dimethyl ester (6CI, 8CI, 9CI) (CA INDEX NAME)



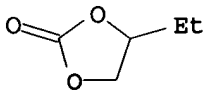
RN 623-53-0 HCAPLUS
CN Carbonic acid, ethyl methyl ester (7CI, 8CI, 9CI) (CA INDEX NAME)



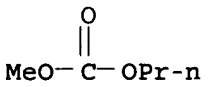
RN 623-96-1 HCAPLUS
CN Carbonic acid, dipropyl ester (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



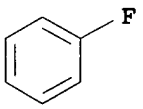
RN 4437-85-8 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-ethyl- (9CI) (CA INDEX NAME)



RN 56525-42-9 HCAPLUS
CN Carbonic acid, methyl propyl ester (7CI, 9CI) (CA INDEX NAME)



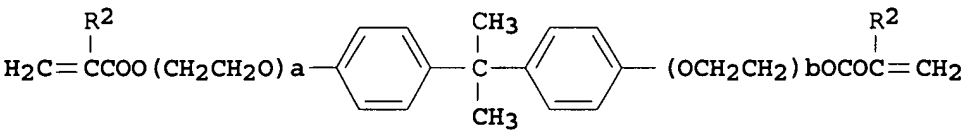
IT **462-06-6**, Benzene, fluoro-
RL: MOA (Modifier or additive use); USES (Uses)
(polymer electrolyte for lithium secondary **battery**)
RN 462-06-6 HCAPLUS
CN Benzene, fluoro- (8CI, 9CI) (CA INDEX NAME)



L36 ANSWER 15 OF 23 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:704778 HCAPLUS
DN 135:257610
TI Ion conductive solid for solid electrolyte and solid electrolyte and electric **battery** made from the same
IN Watanabe, Takashi; Nakaya, Hiroyuki
PA Sekisui Chemical Co. Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001261763	A2	20010926	JP 2000-80473	20000322
PRAI	JP 2000-80473		20000322		

GI



I

AB The solid is made from ≥1 kind of R1C(:CH2)COO(CH2CH2O)nSO2Me (R1 = H, C<10 alkyl, fluorinated alkyl; n <20). Thus, a solid **electrolyte** for preparation of **battery** was made by a copolymer of Blemmer PE 200 and A-BPE 20 (I, R2 = H) containing MeSO3(CH2CH2O)3Me, **benzoylperoxide**, and LiPF6.

IC ICM C08F299-02
ICS C08F220-26; C08F220-38; C08F290-06; C08K003-24; C08L055-00; C08L101-02; H01B001-06; H01M006-18; H01M008-02; H01M010-40

CC 35-4 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): **52**

ST ion conductive solid **electrolyte battery**; ethoxylated **sulfone** plasticizer acrylate polymer

IT Ionic conductors
Primary **batteries**
Solid electrolytes
(ion conductive solid for solid electrolyte and solid electrolyte and elec. **battery** made from the same)

IT 25014-41-9, Polyacrylonitrile **106209-61-4** 362047-86-7
RL: TEM (Technical or engineered material use); USES (Uses)
(ion conductive solid for solid electrolyte and solid electrolyte and elec. **battery** made from the same)

IT 74654-05-0 175172-61-9
RL: MOA (Modifier or additive use); USES (Uses)
(plasticizers; ion conductive solid for solid electrolyte and solid electrolyte and elec. **battery** made from the same)

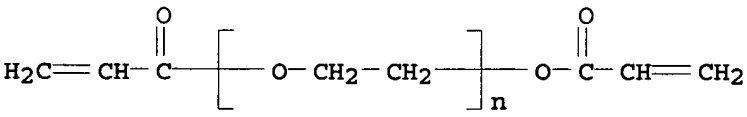
IT **106209-61-4**
RL: TEM (Technical or engineered material use); USES (Uses)
(ion conductive solid for solid electrolyte and solid electrolyte and elec. **battery** made from the same)

RN 106209-61-4 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), α-(1-oxo-2-propenyl)-ω-[(1-oxo-2-propenyl)oxy]-, polymer with α-(2-methyl-1-oxo-2-propenyl)-ω-hydroxypoly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

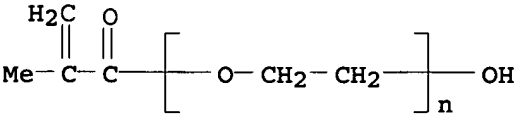
CM 1

CRN 26570-48-9
CMF (C2 H4 O)n C6 H6 O3
CCI PMS



CM 2

CRN 25736-86-1
CMF (C2 H4 O)n C4 H6 O2
CCI PMS



L36 ANSWER 16 OF 23 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2000:182846 HCAPLUS
DN 132:208995
TI Oxidation- and chemically resistant polymer electrolytes, their manufacture, and their uses in ion exchangers, fuel cells, and automobiles
IN Kidai, Kiyoyuki; Morikawa, Hirofumi
PA Toray Industries, Inc., Japan
SO Jpn. Kokai Tokkyo Koho, 12 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2000080166	A2	20000321	JP 1999-191403	19990706
PRAI JP 1998-190246	A	19980706		

AB The polymer **electrolytes**, useful for water treatment, **electrolytic** cells, dialysis, and fuel cells, comprise (A) poly(arylene sulfide **sulfones**) (PASS) and/or poly(arylene **sulfones**) (PAS) having ion-exchange groups or (B) base polymers having ion-exchange groups and PASS and/or PAS. Thus, poly(phenylene sulfide **sulfone**) was dissolved in N-methylpyrrolidone, applied on carbon paper, and immersed in H2O to give a porous membrane, which was impregnated with a solution containing Nafion (ion-exchange resin) and dried to give an ion-exchange membrane showing average oxidation degree of S (except SO3H group) 1.0, ion-exchange capacity 0.5 mequiv/g, and good resistance to oxidation by Fenton reagents.
IC ICM C08G075-02
ICS B01D071-68; B01J039-18; B01J041-12; B01J045-00; B01J047-12; C08G075-18; C08G075-20; C08J005-22; C08L071-02; C08L081-02; C25B013-08; H01B001-06; H01M008-02
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 47, **52**, 61, 72
ST polyarylene sulfide **sulfone electrolyte** ion exchanger; oxidn resistance polyphenylene sulfide **sulfone electrolyte**
IT Chemically resistant materials
(alkali-resistant; oxidation- and chemical resistant polymer **electrolytes** containing poly(arylene sulfide **sulfones**) or poly(arylene **sulfones**) for ion exchangers and fuel cells for automobiles)
IT **Polysulfones**, uses
RL: DEV (Device component use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(aromatic; oxidation- and chemical resistant polymer **electrolytes** containing poly(arylene sulfide **sulfones**) or poly(arylene **sulfones**) for ion exchangers and fuel cells for automobiles)
IT Water purification
(cation exchange; oxidation- and chemical resistant polymer **electrolytes** containing poly(arylene sulfide **sulfones**) or poly(arylene **sulfones**) for ion exchangers and fuel cells for automobiles)
IT Polyoxyalkylenes, uses
RL: DEV (Device component use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(fluorine- and sulfo-containing, ionomers, Nafion; oxidation- and chemical resistant polymer **electrolytes** containing poly(arylene sulfide **sulfones**) or poly(arylene **sulfones**) for ion

exchangers and fuel cells for automobiles)
IT Polyoxyalkylenes, uses
RL: DEV (Device component use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(fluorine-containing, sulfo-containing, ionomers, Nafion; oxidation- and chemical resistant polymer **electrolytes** containing poly(arylene sulfide **sulfones**) or poly(arylene **sulfones**) for ion exchangers and fuel cells for automobiles)
IT Membranes, nonbiological
(hollow-fiber; oxidation- and chemical resistant polymer **electrolytes** containing poly(arylene sulfide **sulfones**) or poly(arylene **sulfones**) for ion exchangers and fuel cells for automobiles)
IT Dialyzers
(membranes; oxidation- and chemical resistant polymer **electrolytes** containing poly(arylene sulfide **sulfones**) or poly(arylene **sulfones**) for ion exchangers and fuel cells for automobiles)
IT Acid-resistant materials
Automobiles
Cation exchangers
Electric vehicles
Electrolytic cells
Fuel cell **electrolytes**
Fuel cells
Solvent-resistant materials
(oxidation- and chemical resistant polymer **electrolytes** containing poly(arylene sulfide **sulfones**) or poly(arylene **sulfones**) for ion exchangers and fuel cells for automobiles)
IT Fluoropolymers, uses
RL: DEV (Device component use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(oxidation- and chemical resistant polymer **electrolytes** containing poly(arylene sulfide **sulfones**) or poly(arylene **sulfones**) for ion exchangers and fuel cells for automobiles)
IT Fluoropolymers, uses
Fluoropolymers, uses
RL: DEV (Device component use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyoxyalkylene-, sulfo-containing, ionomers, Nafion; oxidation- and chemical resistant polymer **electrolytes** containing poly(arylene sulfide **sulfones**) or poly(arylene **sulfones**) for ion exchangers and fuel cells for automobiles)
IT Ionomers
RL: DEV (Device component use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyoxyalkylenes, fluorine- and sulfo-containing, Nafion; oxidation- and chemical resistant polymer **electrolytes** containing poly(arylene sulfide **sulfones**) or poly(arylene **sulfones**) for ion exchangers and fuel cells for automobiles)
IT Polythiophenylenes
Polythiophenylenes
Polythiophenylenes
RL: DEV (Device component use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(**polysulfone**-, fiber, membranes, hollow-fiber; oxidation- and chemical resistant polymer **electrolytes** containing poly(arylene sulfide **sulfones**) or poly(arylene **sulfones**) for ion exchangers and fuel cells for automobiles)
IT Polythioarylenes
Polythioarylenes
Polythiophenylenes

Polythiophenylenes
RL: DEV (Device component use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(**polysulfone**-; oxidation- and chemical resistant polymer **electrolytes** containing poly(arylene sulfide **sulfones**) or poly(arylene **sulfones**) for ion exchangers and fuel cells for automobiles)

IT Synthetic polymeric fibers, uses
RL: DEV (Device component use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(**polysulfone**-polythiophenylene, membranes, hollow-fiber; oxidation- and chemical resistant polymer **electrolytes** containing poly(arylene sulfide **sulfones**) or poly(arylene **sulfones**) for ion exchangers and fuel cells for automobiles)

IT **Polysulfones**, uses
Polysulfones, uses
RL: DEV (Device component use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polythioarylene-; oxidation- and chemical resistant polymer **electrolytes** containing poly(arylene sulfide **sulfones**) or poly(arylene **sulfones**) for ion exchangers and fuel cells for automobiles)

IT **Polysulfones**, uses
Polysulfones, uses
Polysulfones, uses
RL: DEV (Device component use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polythiophenylene-, fiber, membranes, hollow-fiber; oxidation- and chemical resistant polymer **electrolytes** containing poly(arylene sulfide **sulfones**) or poly(arylene **sulfones**) for ion exchangers and fuel cells for automobiles)

IT **Polysulfones**, uses
Polysulfones, uses
RL: DEV (Device component use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polythiophenylene-; oxidation- and chemical resistant polymer **electrolytes** containing poly(arylene sulfide **sulfones**) or poly(arylene **sulfones**) for ion exchangers and fuel cells for automobiles)

IT 79-21-0, Peracetic acid 93-59-4, Perbenzoic acid 4212-43-5, Perpropionic acid 7681-52-9, Sodium hypochlorite 7697-37-2, Nitric acid, reactions 7722-84-1, Hydrogen **peroxide**, reactions 7722-86-3, **Peroxymonosulfuric** acid 7726-95-6, Bromine, reactions 7782-50-5, Chlorine, reactions 13122-71-9, Perbutyric acid 28831-12-1, Oxon
RL: RCT (Reactant); RACT (Reactant or reagent)
(S-oxidizing agent; oxidation- and chemical resistant polymer **electrolytes** containing poly(arylene sulfide **sulfones**) or poly(arylene **sulfones**) for ion exchangers and fuel cells for automobiles)

IT 27028-97-3DP, Poly(phenylene sulfide **sulfone**), oxidized or sulfonated
RL: DEV (Device component use); IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(oxidation- and chemical resistant polymer **electrolytes** containing poly(arylene sulfide **sulfones**) or poly(arylene **sulfones**) for ion exchangers and fuel cells for automobiles)

IT 27028-97-3, Poly(phenylene sulfide **sulfone**)
RL: DEV (Device component use); PRP (Properties); RCT (Reactant); TEM

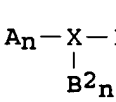
(Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(oxidation- and chemical resistant polymer **electrolytes** containing poly(arylene sulfide **sulfones**) or poly(arylene **sulfones**) for ion exchangers and fuel cells for automobiles)

IT 64-17-5, Ethanol, uses 67-56-1, Methanol, uses 67-63-0, Isopropyl alcohol, uses 68-12-2, Dimethylformamide, uses 71-23-8, n-Propyl alcohol, uses 79-20-9, Methyl acetate 79-43-6, Dichloroacetic acid, uses 80-73-9 106-48-9, p-Chlorophenol 108-21-4, Isopropyl acetate 108-39-4, uses 109-60-4, Propyl acetate 110-19-0, Isobutyl acetate 123-86-4, Butyl acetate 141-78-6, Ethyl acetate, uses 680-31-9, Hexamethylphosphoric triamide, uses 872-50-4, N-Methylpyrrolidone, uses 7732-18-5, Water, uses
RL: NUU (Other use, unclassified); USES (Uses)
(solvent in film formation; oxidation- and chemical resistant polymer **electrolytes** containing poly(arylene sulfide **sulfones**) or poly(arylene **sulfones**) for ion exchangers and fuel cells for automobiles)

L36 ANSWER 17 OF 23 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1999:375786 HCAPLUS
DN 131:7556
TI Fire-resistant gas generating **battery** electrolytes
IN Narang, Subhash; Ventura, Susanna; Cox, Philip
PA SRI International, USA
SO PCT Int. Appl., 36 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9928987	A1	19990610	WO 1998-US25466	19981201
	W: AL, AM, AT, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, CZ, DE, DE, DK, DK, EE, EE, ES, FI, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	CA 2313027	AA	19990610	CA 1998-2313027	19981201
	AU 9916161	A1	19990616	AU 1999-16161	19981201
	EP 1042838	A1	20001011	EP 1998-960601	19981201
	R: DE, GB				
	JP 2001525597	T2	20011211	JP 2000-523720	19981201
PRAI	US 1997-67226P	P	19971202		
	WO 1998-US25466	W	19981201		

GI



I

AB A compound that generates a fire-retardant gas upon decomposition has general structure (I) wherein, X is N, C, S, NO, N2, CO, SO; A is substantially

any organic moiety including alkyl, aryl, alkoxy, cyclic, fused cyclic, heteroatoms, ketals, acetals or alcs. B1 and B2 are substantially any organic moiety including alkyl, aryl, alkoxy, cyclic, fused cyclic, heteroatoms, ketals, acetals or alcs., also including oxygen, hydrogen and null; and n is an integer from 0-100. Preferred gases generated thereby include CO, SO2, SO3, NO, N2O, NO2 and N2. It is also preferred that the generated gas assists in formation of a solid electrolyte interface (SEI) between the electrolyte and at least one of the electrodes. It is most preferred that the cell have a conductivity greater than 10-3 S/cm.

IC ICM H01M010-40

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

ST **battery** electrolyte fire resistant gas generation

IT **Azo** compounds
Azoxy compounds
Nitrites
Sulfates, uses
Sulfites
Sulfones
RL: MOA (Modifier or additive use); USES (Uses)
(**electrolyte** additive; fire-resistant gas generating **battery electrolytes**)

IT **Battery** electrolytes
Fire-resistant materials
(fire-resistant gas generating **battery** electrolytes)

IT Fluoropolymers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(fire-resistant gas generating **battery** electrolytes)

IT Secondary **batteries**
(lithium; fire-resistant gas generating **battery** electrolytes)

IT **78-67-1**, **Azobis**(isobutyronitrile) 78-82-0, Isopropyl nitrile 543-29-3, Isobutyl nitrate 822-38-8, Ethylene **trithiocarbonate** 3741-38-6, Ethylene sulfite 25843-45-2, **Azoxymethane** 28322-92-1 **28452-93-9**, Butadiene **sulfone**
RL: MOA (Modifier or additive use); USES (Uses)
(**electrolyte** additive; fire-resistant gas generating **battery electrolytes**)

IT 7439-93-2, Lithium, uses 7782-42-5, Graphite, uses 12057-17-9, Lithium manganese oxide limn2o4 12068-85-8, Iron disulfide 52627-24-4, Cobalt lithium oxide
RL: DEV (Device component use); USES (Uses)
(fire-resistant gas generating **battery** electrolytes)

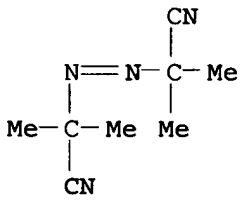
IT **96-49-1**, Ethylene **carbonate** **616-38-6**, Dimethyl **carbonate** 21324-40-3, Lithium hexafluorophosphate
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(fire-resistant gas generating **battery** electrolytes)

IT 630-08-0, Carbon monoxide, formation (nonpreparative) 7446-09-5, Sulfur dioxide, formation (nonpreparative) 7446-11-9, Sulfur trioxide, formation (nonpreparative) 7727-37-9, Nitrogen, formation (nonpreparative) 10024-97-2, Nitrogen oxide (N2O), formation (nonpreparative) 10102-43-9, Nitric oxide, formation (nonpreparative) 10102-44-0, Nitrogen dioxide, formation (nonpreparative)
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(fire-resistant gas generating **battery** electrolytes)

IT 78-40-0, Triethyl phosphate 24937-79-9
RL: MOA (Modifier or additive use); USES (Uses)
(fire-resistant gas generating **battery** electrolytes)

IT **78-67-1**, **Azobis**(isobutyronitrile) **28452-93-9**,

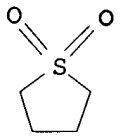
Butadiene **sulfone**
RL: MOA (Modifier or additive use); USES (Uses)
(**electrolyte** additive; fire-resistant gas generating **battery electrolytes**)
RN 78-67-1 HCAPLUS
CN Propanenitrile, 2,2'-azobis[2-methyl- (9CI) (CA INDEX NAME)



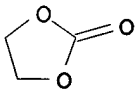
RN 28452-93-9 HCAPLUS
CN Thiophene, dihydro-, 1,1-dioxide (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

CM 1

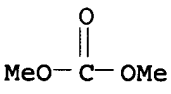
CRN 126-33-0
CMF C4 H8 O2 S



IT **96-49-1**, Ethylene **carbonate 616-38-6**, Dimethyl **carbonate**
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(fire-resistant gas generating **battery** electrolytes)
RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (9CI) (CA INDEX NAME)



RN 616-38-6 HCAPLUS
CN Carbonic acid, dimethyl ester (6CI, 8CI, 9CI) (CA INDEX NAME)



RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L36 ANSWER 18 OF 23 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 1997:702055 HCAPLUS
DN 128:13756
TI Acrylic polyurethane solid electrolyte-formable compositions and manufacture of solid electrolytes using them
IN Takiyama, Eiichiro; Matsui, Fumio; Morita, Katsuhisa; Takino, Yukiko; Ogiwara, Kazushige; Takahashi, Kentaro
PA Showa Highpolymer Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 09278971	A2	19971028	JP 1996-88528	19960410
PRAI JP 1996-88528		19960410		

AB The compns. contain (A) monomers having (meth)acryloyl groups and acetoacetoxy groups in a mol., (B) unsatd. polyurethanes obtained by reaction of (meth)acryloyl- and OH-having unsatd. polyesters with isocyanates, (C) Li compds., and (D) solvents which can dissolve the Li compds. The **electrolytes** are manufactured by polymerization of the above compns., which may be previously partially polymerized to control the viscosity, in a die. The compns. are useful for manufacture of film **batteries.** Thus, a composition containing AAEM (acetoacetoxyethyl **methacrylate**) 100, an unsatd. polyurethane [obtained by reaction of Placcel FM 5 with MOI (isocyanatoethyl **methacrylate**)] 15, propylene **carbonate** 185, LiBF4 30, and benzoyl **peroxide** 2 parts was casted between 2 Pt electrode plate and polymerized at 80-100° for 2 h under N flow to give a soft gelatin-like polymer film with elec. conductivity 2.1 + 10-4 S/cm.

IC ICM C08L033-14
ICS C08K003-24; C08L075-14; H01B001-06; H01M006-18; H01M010-40
CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): **52**
ST acrylic polyurethane solid electrolyte lithium salt; cast polymn acrylic polyurethane solid electrolyte; acetoacetoxyethyl acrylate polyurethane lithium salt electrolyte; **methacrylate** acetoacetoxyethyl polyurethane lithium salt electrolyte
IT Polyurethanes, preparation
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(acrylic; manufacture of solid electrolytes from acrylic polyurethanes compns. containing acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)
IT Polymerization
(casting; manufacture of solid electrolytes from acrylic polyurethanes compns. containing acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)
IT **Battery** electrolytes
(manufacture of solid electrolytes from acrylic polyurethanes compns. containing acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)
IT Polyurethanes, preparation
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyoxyalkylene-, acrylic; manufacture of solid electrolytes from acrylic polyurethanes compns. containing acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)

IT Polyelectrolytes
(solid; manufacture of solid electrolytes from acrylic polyurethanes compns. containing acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)

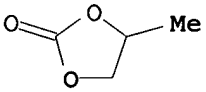
IT 198956-70-6P 198956-71-7P
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(manufacture of solid electrolytes from acrylic polyurethanes compns. containing acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)

IT 7791-03-9, Lithium perchlorate 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 33454-82-9, Lithium trifluoromethanesulfonate
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(manufacture of solid electrolytes from acrylic polyurethanes compns. containing acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)

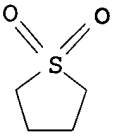
IT 75-05-8, Acetonitrile, uses 96-48-0, γ-Butyrolactone **108-32-7**, Propylene **carbonate** 110-71-4, 1,2-Dimethoxyethane **126-33-0**, Sulfolane
RL: NUU (Other use, unclassified); USES (Uses)
(solvent; manufacture of solid **electrolytes** from acrylic polyurethanes compns. containing acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)

IT **108-32-7**, Propylene **carbonate** **126-33-0**, Sulfolane
RL: NUU (Other use, unclassified); USES (Uses)
(solvent; manufacture of solid **electrolytes** from acrylic polyurethanes compns. containing acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)

RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (9CI) (CA INDEX NAME)



RN 126-33-0 HCAPLUS
CN Thiophene, tetrahydro-, 1,1-dioxide (8CI, 9CI) (CA INDEX NAME)



L36 ANSWER 19 OF 23 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1997:699316 HCAPLUS
DN 128:23638
TI Acrylic polyurethane solid electrolyte-formable compositions and manufacture of solid electrolytes from them
IN Takiyama, Eiichiro; Matsui, Fumio; Morita, Katsuhisa; Takino, Sachiko; Ogiwara, Kazushige; Takahashi, Kentaro

PA Showa Highpolymer Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 09278972	A2	19971028	JP 1996-88529	19960410
PRAI JP 1996-88529		19960410		

AB The compns. contain (A) monomers having (meth)acryloyl groups and acetoacetoxy groups in a mol., (B) unsatd. polyurethanes obtained by reaction of polyester polyols with unsatd. isocyanates, (C) Li compds., and (D) solvents which can dissolve the Li compds. The **electrolytes** are manufactured by polymerization of the above compns., which may be previously partially polymerized to control the viscosity, in a die. The compns. are useful for manufacture of film **batteries**. Thus, a composition containing AAEM (acetoacetoxyethyl **methacrylate**) 100, an unsatd. polyurethane (obtained by reaction of a polyester polyol from di-Et malonate and ethylene glycol with isocyanatoethyl **methacrylate**) 15, propylene **carbonate** 215, LiBF4 33, and benzoyl **peroxide** 2 parts was casted between 2 Pt electrode plate and polymerized at 80-100° for 2 h under N flow to give a soft gelatin-like polymer film with elec. conductivity 2.7 + 10-4 S/cm.

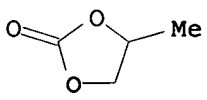
IC ICM C08L033-14
ICS C08K003-24; C08L075-14; H01B001-06; H01M006-18; H01M010-40
CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): **52**
ST acrylic polyester polyurethane solid electrolyte lithium; cast polymn acrylic polyester polyurethane electrolyte; acetoacetoxyethyl acrylate polyurethane polyester lithium electrolyte; **methacrylate** acetoacetoxyethyl polyester polyurethane lithium electrolyte
IT Polymerization
(casting; manufacture of solid electrolytes from acrylic polyurethanes compns. containing acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)
IT **Battery** electrolytes
(manufacture of solid electrolytes from acrylic polyurethanes compns. containing acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)
IT Polyurethanes, preparation
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyester-, acrylic; manufacture of solid electrolytes from acrylic polyurethanes compns. containing acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)
IT Polyelectrolytes
(solid; manufacture of solid electrolytes from acrylic polyurethanes compns. containing acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)
IT 199115-94-1P 199297-26-2P
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(manufacture of solid electrolytes from acrylic polyurethanes compns. containing acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)
IT 7791-03-9, Lithium perchlorate 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium

hexafluorophosphate 33454-82-9, Lithium trifluoromethanesulfonate
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(manufacture of solid electrolytes from acrylic polyurethanes compns. containing acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)

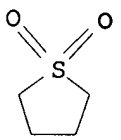
IT 75-05-8, Acetonitrile, uses 96-48-0, γ-Butyrolactone
108-32-7, Propylene **carbonate** 110-71-4,
1,2-Dimethoxyethane **126-33-0**, Sulfolane
RL: NUU (Other use, unclassified); USES (Uses)
(solvent; manufacture of solid **electrolytes** from acrylic polyurethanes compns. containing acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)

IT **108-32-7**, Propylene **carbonate** **126-33-0**,
Sulfolane
RL: NUU (Other use, unclassified); USES (Uses)
(solvent; manufacture of solid **electrolytes** from acrylic polyurethanes compns. containing acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)

RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (9CI) (CA INDEX NAME)



RN 126-33-0 HCAPLUS
CN Thiophene, tetrahydro-, 1,1-dioxide (8CI, 9CI) (CA INDEX NAME)



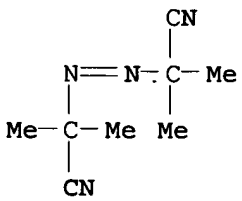
L36 ANSWER 20 OF 23 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1996:754386 HCAPLUS
DN 126:92052
TI Catalyst-containing solid electrolytes and **batteries** using these electrolytes
IN Chaloner-Gill, Benjamin; Olsen, Ib I.; Saidi, Eileen S.
PA USA
SO U.S., 8 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 5580680	A	19961203	US 1994-267066	19940627
PRAI US 1994-267066		19940627		

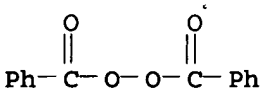
AB The electrolytes include a 1st catalyst that is capable of initiating the polymerization of solvent components at elevated temps. to increase the resistance (or impedance) of the solid electrolyte and thereby prevent thermal runaway and/or a 2nd catalyst that is capable of initiating the

polymerization of flammable substances (e.g., olefins) in the solvent. To assure that the catalysts do not prematurely initiate polymerization below a certain temperature, the catalysts may be microencapsulated within a heat-sensitive material that disintegrates or dissolve at a predetd. elevated temperature to release the catalysts. Microencapsulation permits the controlled release of the catalysts into the electrolyte under the appropriate conditions.

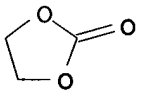
IC ICM H01M006-16
INCL 429192000
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 37
ST **battery** solid electrolyte solvent polymn catalyst; flammable substance polymn catalyst **battery** electrolyte; safety **battery** polymn catalyst electrolyte
IT Polymerization catalysts
(Ziegler-Natta; for **battery** solid electrolytes)
IT Polymerization catalysts
(**battery** solid electrolytes containing)
IT **Battery** electrolytes
(containing polymerization catalyst)
IT Secondary **batteries**
(lithium; with polymerization catalysts for safety)
IT Safety
(of lithium **batteries** with polymerization catalysts-containing solid electrolytes)
IT Bronsted acids
RL: CAT (Catalyst use); USES (Uses)
(polymerization catalyst for **battery** solid electrolytes)
IT **78-67-1**, **Azobisisobutyronitrile** **94-36-0**, Benzoyl **peroxide**, uses 110-22-5, Acetyl **peroxide** 7440-23-5, Sodium, uses 7637-07-2, Boron trifluoride, uses
RL: CAT (Catalyst use); USES (Uses)
(polymerization catalyst for **battery** solid **electrolytes**)
IT 67-68-5, uses 96-48-0, γ-Butyrolactone **96-49-1**, Ethylene **carbonate** **108-32-7**, Propylene **carbonate** 110-71-4, Glyme 111-96-6, Diglyme 112-49-2, Triglyme **126-33-0**, Sulfolane 143-24-8, Tetraglyme 646-06-0, Dioxolane
RL: MOA (Modifier or additive use); USES (Uses)
(polymerization catalyst for **battery** solid **electrolytes** containing solvent of)
IT **78-67-1**, **Azobisisobutyronitrile** **94-36-0**, Benzoyl **peroxide**, uses
RL: CAT (Catalyst use); USES (Uses)
(polymerization catalyst for **battery** solid **electrolytes**)
RN 78-67-1 HCAPLUS
CN Propanenitrile, 2,2'-azobis[2-methyl- (9CI) (CA INDEX NAME)



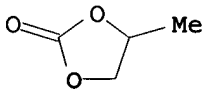
RN 94-36-0 HCAPLUS
CN Peroxide, dibenzoyl (9CI) (CA INDEX NAME)



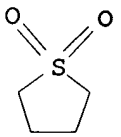
IT **96-49-1**, Ethylene **carbonate 108-32-7**,
Propylene **carbonate 126-33-0**, Sulfolane
RL: MOA (Modifier or additive use); USES (Uses)
(polymerization catalyst for **battery** solid **electrolytes** containing solvent of)
RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (9CI) (CA INDEX NAME)



RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (9CI) (CA INDEX NAME)



RN 126-33-0 HCAPLUS
CN Thiophene, tetrahydro-, 1,1-dioxide (8CI, 9CI) (CA INDEX NAME)



L36 ANSWER 21 OF 23 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1993:82768 HCAPLUS
DN 118:82768
TI Anionic dyeing of cellulosic fiber substrate grafted with N-containing monomer
IN Dannheim, Joerg; Keil, Karl Heinz; Martini, Thomas
PA Hoechst A.-G., Germany
SO Eur. Pat. Appl., 23 pp.
CODEN: EPXXDW
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 509397	A1	19921021	EP 1992-106157	19920409
	EP 509397	B1	19970312		
	R: BE, CH, DE, FR, GB, IT, LI, PT				
	BR 9201379	A	19921201	BR 1992-1379	19920414
	JP 05140880	A2	19930608	JP 1992-94595	19920414

PRAI DE 1991-4112227 A 19910415
AB Cellulosic fiber materials are dyed with anionic, e.g. fiber-reactive group-containing dyes using aqueous dye and padding solns. in which the dye is dissolved where the cellulosic fiber substrate is graft polymerized with ≥1 N-containing basic monomer with the dyeing taking place in the absence of alkali and in the absence or in the presence of small amts. of **electrolytes.** A cotton fabric was graft polymerized with dimethyldiallylammonium chloride to 5.3% pickup, padded with a **hydroxyethylsulfone** reactive **azo** dye solution, wound, stored for 16 h at 20°, rinsed, and dried to give a strong, level bluish red dyeing with good rubbing-, wash-, and light-fastness.
IC ICM D06P003-66
ICS D06P003-60; D06M014-04; D06M014-22
CC 40-6 (Textiles and Fibers)
ST cellulosic fiber graft dyeing reactive; alkali free reactive dyeing cellulosic; anionic dyeing cellulosic electrolyte free
IT Dyeing
(anionic, of cellulosic fibers grafted with N-containing monomers, low electrolyte or electrolyte free)
IT Polymerization
(graft, of N-containing monomers on cellulosic substrates, for alkali and electrolyte free anionic and fiber-reactive dyeing)
IT Dyeing
(reactive, of cellulosic fiber grafted with N-containing monomers, alkali free)
IT 7398-69-8D, Dimethyldiallylammonium chloride, graft polymer with cotton 51410-72-1D, graft polymer with cotton 67296-21-3D, **Dimethylaminopropylmethacrylamide**, graft polymer with cotton
RL: USES (Uses)
(dyeing of, with anionic or fiber-reactive dye, alkali- and electrolyte free)

L36 ANSWER 22 OF 23 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1974:74222 HCAPLUS
DN 80:74222
TI Selective electrodialysis of cations
IN Sata, Toshikatsu; Nishimura, Masakatsu; Izuo, Ryuji
PA Tokuyama Soda Co., Ltd.
SO Ger. Offen., 35 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 2326052	A1	19731206	DE 1973-2326052	19730522
	DE 2326052	B2	19801030		
	DE 2326052	C3	19820107		
	JP 49014382	A2	19740207	JP 1972-49871	19720522
	US 3847772	A	19741112	US 1973-362455	19730521
	FR 2185431	A1	19740104	FR 1973-18546	19730522
	GB 1437271	A	19760526	GB 1973-24469	19730522

PRAI JP 1972-49871 A 19720522
AB An aqueous **electrolyte** containing at least 2 types of cations having different charges, and with a pH of 3.0 - 7.5, is electrodialyzed through a cation exchange membrane having a cationic material on its surface. Cations with lower charges are preferentially electrodialyzed. The cationic material having a mol. weight of at least 100, should be ≥0.1 mg/dm2 of membrane. Thus, a membrane was produced by polymerizing a mixture of powdered poly(vinyl chloride) 100, styrene 90, divinylbenzene 10, dioctyl

phthalate 30, benzoyl **peroxide** 1 part, which was spread on a polyethylene screen. A **sulfone** ion exchange group was introduced by 24 hr immersion in 98% H2SO4, and a cationic surface material by 6 hr immersion in an aqueous solution containing polyethyleneimine 2000 ppm. The membranes are suitable for desalination or concentration of sea water or other salt solns.

IC B01D; C02B
CC 61-3 (Water)
ST seawater desalination electrodialysis
IT Water purification
(electrodialysis, membranes for)
IT Membranes
(for electrodialysis)
IT Benzene, diethenyl-, polymer with ethenylbenzene and 5-ethenyl-2-methylpyridine, sulfonated
Benzene, ethenyl-, polymer with diethenylbenzene and 5-ethenyl-2-methylpyridine, sulfonated
RL: OCCU (Occurrence)
(graft, membranes, for electrodialysis)
IT Benzene, ethenyl-, homopolymer, chloromethylated, quaternary ammonium derivs.
RL: OCCU (Occurrence)
(membranes from sulfonated styrene copolymers and, for electrodialysis)
IT 1,3-Butadiene, polymer with ethenylbenzene, sulfonated
Benzene, ethenyl-, polymer with 1,3-butadiene, sulfonated
RL: OCCU (Occurrence)
(membranes, containing PVC, for electrodialysis)
IT 2-Propenoic acid, 2-methyl-, oxiranylmethyl ester, homopolymer, reaction products with ammonia and triphenylphosphine
Benzene, diethenyl-, polymer with ethenylbenzene, sulfonated
Benzene, ethenyl-, polymer with diethenylbenzene, sulfonated
RL: OCCU (Occurrence)
(membranes, for electrodialysis)
IT 25037-79-0
RL: PROC (Process)
(electrodialysis of, membranes for)
IT 9017-47-4D, Pyridine, 5-ethenyl-2-methyl-, polymer with diethenylbenzene and ethenylbenzene, sulfonated 52309-44-1
RL: OCCU (Occurrence)
(graft, membranes, for electrodialysis)
IT 9002-86-2 9003-00-3
RL: OCCU (Occurrence)
(membranes, containing sulfonated styrene copolymer, for electrodialysis)
IT 603-35-0D, Phosphine, triphenyl-, reaction products with ammonia and poly(glycidyl **methacrylate**) 7664-41-7D, Ammonia, reaction products with poly(glycidyl **methacrylate**) and triphenylphosphine
9020-13-7 25232-41-1D, Pyridine, 4-ethenyl-, homopolymer, quaternized
RL: OCCU (Occurrence)
(membranes, for electrodialysis)
IT **9020-13-7**
RL: OCCU (Occurrence)
(membranes, for electrodialysis)
RN 9020-13-7 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, polymer with diethenylbenzene and ethenylbenzene (9CI) (CA INDEX NAME)

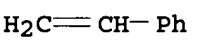
CM 1

CRN 1321-74-0

CMF C10 H10
CCI IDS

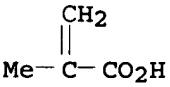
CM 2

CRN 100-42-5
CMF C8 H8



CM 3

CRN 79-41-4
CMF C4 H6 O2



L36 ANSWER 23 OF 23 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1964:28847 HCAPLUS
DN 60:28847
OREF 60:5069f-g
TI New organic depolarizers
AU McElhill, E. A.; Williams, D. L.; Gruber, B. A.
CS Monsanto Res. Corp., St. Louis, MO
SO Proc., Ann. Power Sources Conf. (1963), 17, 145-8
DT Journal
LA Unavailable
AB Over 200 different organic compds. containing various reducible groups were tested for depolarizer activity in a specially designed half-cell. Nitriles, **sulfones**, sulfoxides, phosphine oxides, diazonium salts, isothiocyanates, **cyanoimidodithiocarbonates**, and unsatn. in rings (except some N heterocycles) were inactive. Groups that reduced some or all of the structures included nitro, nitroso, hydroxylamine, **azoxy**, **azo**, nitrate, nitrolic acid, pseudonitrole, quinone, quinonediimines, carbodiimide, iodoso, iodoxy, **peroxide**, acetylenic and ethylenic linkages, elemental halogen addition compds., and activated halogens. As the reaction proceeds the loss of conductivity of **electrolyte** or pore plugging of cathode by bulky products overshadows the structural advantages of individual depolarizers.

CC 15 (Electrochemistry)
IT Unsaturated compounds
(acetylenic and olefinic, as storage-**battery** depolarizers)
IT Azo compounds
Azoxy compounds
Nitro compounds
Nitrolic acids
Nitroso compounds
Peroxides
(as storage-**battery** depolarizers)
IT Amines
(compds. or salts of, with halogens, as storage-**battery** depolarizers)
IT Depolarizers
(organic, for storage **batteries**)
IT Halogen compounds
(with tertiary amines, as storage-**battery** depolarizers)
IT Hydrogen bromochlorobromate(I), compound with quinoline
Hydrogen dichloroiodate(I), compound with quinoline
(as storage-**battery** depolarizer)
IT Iodoso group
Iodoxy group
(compds. containing, as storage-**battery** depolarizers)
IT Bromate(I), bromochloro-
Iodides, dichloro-
(in storage-**battery** depolarizer)
IT 94-36-0, Benzoyl peroxide 99-65-0, Benzene, m-dinitro- 100-25-4, Benzene, p-dinitro- 103-72-0, Isothiocyanic acid, phenyl ester 3454-11-3, Acetonitrolic acid, potassium salt 32602-96-3, Pyrrole, 2,5-dinitro- 65537-98-6, 1,2,4,5-Benzenetetracarboxylic acid, 3,6-dinitro- 93064-53-0, Quinoline, dichloroiodate(I) 94032-69-6, 1,2,4,5-Benzenetetracarboxylic acid, 3,6-dinitro-, tetrasodium salt 94387-13-0, Quinoline, bromochlorobromate(I)
(as storage-**battery** depolarizer)
IT 106-51-4, p-Benzoquinone 151-51-9, Carbodiimide 4377-73-5, p-Benzoquinone diimine 7803-49-8, Hydroxylamine 859048-59-2, Methane, nitronitroso-
(derivs., as storage-**battery** depolarizers)
IT 7697-37-2, Nitric acid
(equilibrium (liquid-vapor) of aqueous solns. of, as storage-**battery** depolarizers)
IT 14522-79-3, Iodate(I), dichloro-
(in storage-**battery** depolarizer)

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